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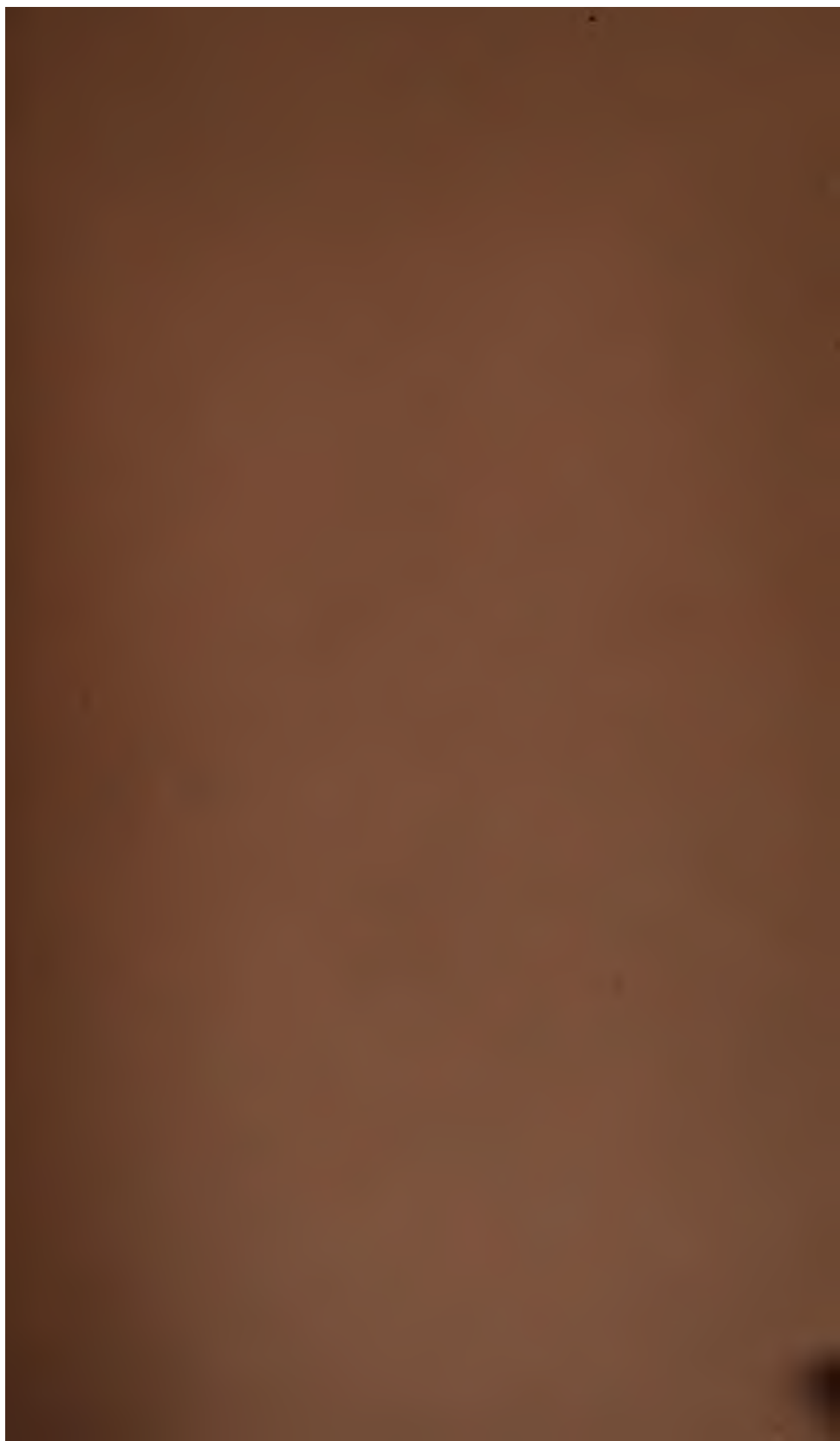
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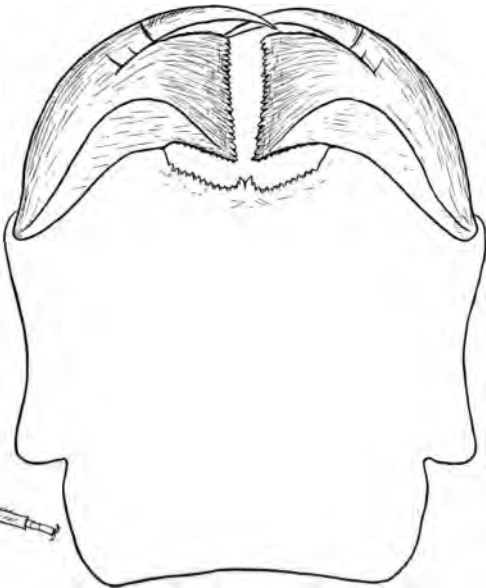
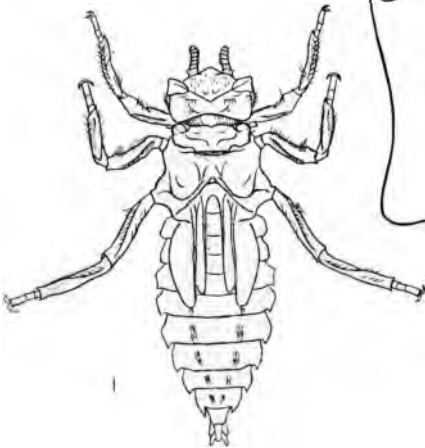
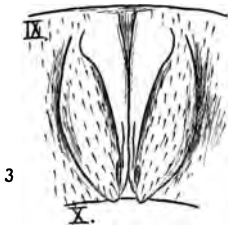
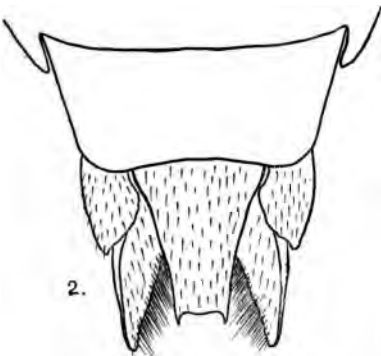
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TACHOPTERYX THOREYI.
(NYMPH.)

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

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On the Manner of Oviposition and on the Nymph of *Tachopteryx Thoreyi*.

(ORDER ODONATA.)

Plate I.

By E. B. WILLIAMSON, Vanderbilt University, Nashville, Tenn.

Tachopteryx Thoreyi Hagen is the only representative in eastern North America of the legion *Petalura* (Selys) of the subfamily Gomphinæ. This legion has been regarded by late writers as the most primitive of all the Odonata *Anisoptera*. No nymphs of this legion have hitherto been described, so it is believed that the following description will be particularly welcome.

The nymph in question was collected by Mr. D. A. Atkinson, near Pittsburg, Pennsylvania, on June 4, 1900. Mr. Atkinson was collecting salamanders in a boggy spot along Squaw Run, a tributary of the Allegheny River in Alleghany County, when he saw the nymph clinging to the trunk of a tree, about two feet above the mud from which it had recently crawled, as the mud which covered it was not yet dry. This was about 10 A.M. Placed in a box the nymph climbed up one side to a height of

about eighteen inches, and the imago emerged at 5 P.M. In the boggy spot where the nymph was collected, at that time the only surface water was that which was retained in small depressions, such as the tracks of cattle, among the roots of the sedges and grasses. On July 15, 1900, Mr. J. L. Graf observed another female ovipositing in this same swale. She alighted among the dense grasses and placed the eggs among the roots or in wet decaying vegetable matter above the surface of the water. She would raise and lower her abdomen eight or ten times in one place, then fly to another spot. The time was between 10 and 11 A.M. On June 23, 1900, at Ohio Pyle, Mr. Graf discovered still a third female of this species ovipositing. A mere thread of water flowed along the railroad track from several small springs. The bed of this small stream was composed of cinders and sand. The dragonfly alighted in the grass near this stream and placed her eggs in a small depression in the cinders. This depression contained not more than a tablespoonful of water. Into this small basin she thrust her abdomen a number of times at the rate of fifteen or twenty times a minute. Mr. Graf caught her as she started to fly away. Held in the fingers she could not be induced to exude any more eggs. This was about 1 P.M. Neither Mr. Graf nor myself could discover the eggs where she had been ovipositing. While the female was resting in the grass a male was either fluttering about or resting on a large boulder close at hand.

Description of Nymph.—Length 38 mm., including abdominal appendages; tarsi 3-3-3; antennæ 7-jointed; lateral lobe of labium bent dorsally near its posterior edge to form a mask which covers the labrum and a portion of the clypeus; impression of the vulvar lamina and genital valves present on the sternum of the ninth abdominal segment. Color entirely concealed by the mud which encrusts the specimen and which a thorough washing failed to entirely remove. It is possible that structural characters may be obscured by this mud and so omitted in the following description.

Head wide, angular, square, convex in front, concave behind, the eyes placed in the outer anterior corners; roughened, generally sparsely hairy, edges and tubercles with dense bristle-like hairs; on each side, back of the eyes two prominent edges and a less developed one above; face in front of base of antennæ vertical; antennæ 3.5 mm. long, hairy, flattened, the basal joint largest, terete, with the external edge angular; last joint small, apex irregular; other joints about equal in size, slightly larger basally, about half as long as wide. Labium short and broad; middle

lobe square, 4.5 mm. long and 5.5 mm. wide, abruptly narrower near the posterior end; anterior edge with a larger tooth on either side of the median line and about ten smaller ones on either side; extending posteriorly to half way between the bases of the first and second pairs of legs; lateral lobes wide, opposed edges straight, notched with small serrations.

Prothorax angular, high, dorsum and sides meeting at nearly a right angle, the edge produced laterally and clothed with bristly hairs; all of thorax scantily clothed with short hairs. The thorax widens and deepens from the prothorax to the metathorax at the base of the third pair of legs where it is as wide as the abdomen in its widest part. The front wing cases extend to the posterior edge of the fourth abdominal segment; apparently the costae lie almost parallel; the cases of the hind wings reach to the middle of the fifth segment. Legs very robust, strongly formed, angular, especially the femora, the edges clothed with bristles; a deep depression in the mesosternum, between the second pair of legs, to accommodate the hinge of the labium.

Abdomen spindle-shaped, 23 mm. long, widest at the fifth segment where its width equals one-half its length, low, flattened, the sterna scarcely convex, terga convex, width of fifth segment 11 mm., depth 5 mm. Segment nine with a lateral posterior spine; on segments anterior this spine grows successively smaller, not present on first three segments. The mark, on the sternum of the ninth segment, of the ovipositor of the imago is conspicuous. On dorsum of segment five are two tufts of bristles, one on either side, separated from each other by about one-third the width of the segment, and placed a little nearer the posterior than the anterior margin of the segment; these tufts persist from the fifth to the ninth segments, the tufts on each segment successively approaching each other more closely till on the ninth they stand just on either side of the median line; each tuft is placed on an irregular elevation and in some cases seems to be double. Appendages short, middle one tapering; apex truncate, on either side produced to form a short tooth; laterals shorter, conical; inferiors compressed, wide, rounded triangular, longer than the middle appendage, the lower edges and the posterior ventral edge of the tenth segment between them bearing many long stiff, yellowish hairs.

Described from the exuvia of the reared female of June 4, 1900; both exuvia and imago are in my collection.

EXPLANATION OF PLATE I.

Fig. 1.—Dorsal view of Nymph of *Tachopteryx Thoreyi* Hagen, Pittsburgh, Pa., June 4, 1900.

Fig. 2.—Dorsal view of the terminal abdominal appendages.

Fig. 3.—Median portion of the sternum of ninth abdominal segment showing the prominences for the ovipositor of the imago.

Fig. 4.—Labium of the exuvia.

The Bees of Maine and Indiana.

By JOHN H. LOVELL, Waldoboro, Maine.

PROSOPIS.

While the bees of the genus *Prosopis* are widely distributed, comparatively few species occur in any one locality. In New Mexico there have been described *P. asinina*, *mesillæ*, *rudbeckiæ*, *tridentulæ* and *wooloni*; in Illinois *P. affinis* (*ziziæ*), *illincensis*, *modesta*, *nelumbonis*, *pygmæa*, *saniculæ* and *thaspæi*; in New Jersey *P. affinis*, *antennata*, *confluens*, *modesta* and *pygmæa*; and in Canada *P. affinis*, *basalis*, *elliptica*, *modesta* and *varifrons*. It will be observed that the species of New Mexico differ entirely from those of Illinois, and belong to a southern type. The bees of northeastern America, including Illinois, New Jersey, New England and Canada, form a natural group containing several species in common, while others are more local in their distribution.

My collections have been made within an area of a few square miles in Lincoln County, in southern Maine. This county lies in latitude 44° and borders upon the salt water. Very likely, when the State has been thoroughly explored, additional species may be discovered. This paper is based upon 66 specimens taken by myself at Waldoboro, Maine; and 37 specimens collected for me by Mr. R. J. Weith, at Elkhart, Indiana. I have been unable to find any record of observations upon Maine bees.

1. *P. basalis* Sm., 1853.

This is a very rare species in this locality. I have taken only a single specimen, a female, on the flowers of *Aralia hispida* which blooms in July. This species has been recorded from Canada, New Hampshire and New York. It may be recognized by its large size and the absence in the female of all yellow markings. The length of this specimen is 9 mm. Black, tarsi ferruginous, also the edge of the wing base. Face closely punctate, punctures elongate; clypeus and sides of face minutely pubescent; thorax closely punctate. First segment of abdomen smooth and shining, apical margin fringed laterally with a white pubescence.

2. *P. pygmaea* Cr., 1869.

A small species; length 4 mm. My first specimens were taken this season on the garden blackberry June 19th, and my last on the goldenrod August 22nd; this bee was also taken on the wild rose and *Aralia hispida*. Nine ♀ and eight ♂ specimens taken at Waldoboro, Maine, and seven ♀ and four ♂ specimens collected at Elkhart, Indiana.

♀.—Face marks bow shaped, yellow (in one specimen nearly dark); clypeus and supraclypeal piece dark, finely and irregularly striate; in one specimen there is a small dot on clypeus. Collar dark, two yellow spots on tubercles, sometimes with a minute dark dot in the center; tegulae either with or without a yellow spot. First segment of abdomen smooth and shining, no apical fringe of pubescence on segments.

♂.—Base of all the tibiae, tubercles, clypeus, supraclypeal piece and sides of face pale yellow; upward extensions of lateral face marks diverging from the orbit, and slightly enlarged and rounded at apex. Supraclypeal mark longer than broad. Yellow line on scape in front, flagellum testaceous beneath.

In Illinois females frequently have a spot on clypeus, and usually a spot on tegulae; but the males are frequently without spots on tegulae.

3. *P. saniculæ* Rob., 1896.

♀.—More slender than *P. pygmaea*. A narrow, rather short yellow stripe on each side of the face, not filling the space between the clypeus and orbit. A yellow spot on each of the hind tibiae; collar, tubercles and tegulae dark. Head and thorax finely punctate; abdomen impunctate, shining; apical segments minutely pubescent.

My specimens were taken July 15–16th on *Aralia hispida*.

Waldoboro, Maine, 3 ♀ specimens; Elkhart, Indiana, 2 ♂ specimens.

4. *P. modesta* Say, 1897.

♀.—Face marks triangular, two yellow spots on collar and tubercles, and base of all the tibiae yellow. Flagellum testaceous beneath. No yellow spots on tegulae or edge of wing-base. Head and thorax closely punctured; first abdominal segment smooth and shining, with lateral apical fringe of white pubescence. Wings dusky hyaline.

Elkhart, Indiana, 4 ♀ specimens. Robertson regards it as probable that Say's description was based on specimens taken in Indiana.

The females of this species in Illinois do not differ from this

description, except that sometimes they have small spots on tegulæ.

At Waldoboro, Maine, I have taken 32 female specimens that agree with the above description. My first specimens this season were taken July 15th on *Aralia hispida*, my last August 19th on the goldenrod. I have also taken these females on *Spiræa salicifolia*, *Ilex verticillata*, *Cornus stolonifera* and the wild rose. In size they show considerable variation. I have also taken in this locality 11 female specimens which have the face marks but slightly triangular or reduced to a narrow stripe. In one of these forms the collar is dark and the spots on tubercles are very small, otherwise they are typical. The markings are occasionally orange colored.

♂.—Clypeus, supraclypeal piece and sides of face yellow, upward extensions of lateral face marks tapering to a point. Anterior tibiæ in front and base of all the others are tarsi-yellow. First abdominal segment shining, punctuation sparse and faint, otherwise as in female.

Elkhart, Indiana, 19 ♂ specimens.

In Illinois, according to Robertson, 13 male specimens agree with this description, six had a yellow line on mandibles, five a yellow spot on labrum, one had the scape yellow in front and three had no spot on collar.

While the females of *P. modesta* are our commonest forms of *Prosopis* in Maine, the males are comparatively rare. As the result of much diligent collecting in this genus, I have taken but four males of *P. modesta*, two (taken on the goldenrod August 19th and 20th) agree with the above description, the third has no spots on collar, the fourth (taken July 16th on *Spiræa salicifolia*) has no spots on collar, but a spot on labrum and yellow lines on mandibles.

5. *P. affinis* Sm., 1853.

P. zizizæ Rob., 1896.

♀.—I have from Indiana a single specimen. It differs from *P. modesta* in having a yellow spot on tegulæ and the edges of wing-base yellow. Six female specimens collected at Waldoboro, Maine, conform to the type. As noticed by Cockerell they are rather smaller than *P. modesta*.

July 16th on *Aralia hispida* to August 11th on goldenrod.

♂.—Differs from the male of *P. modesta* in the broad truncation of the

upward extensions of the lateral face marks ; in the yellow spot on tegulae and edge of wing-base ; and in having the first abdominal segment finely but closely and distinctly punctured. One of my specimens has the markings orange instead of yellow, and in another they are flesh colored. This species is much rarer than the preceding.

Waldoboro, Maine, 4 ♂ specimens ; August.

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On a Florida Beach.

By ANNIE TRUMBULL SLOSSON.

It has always been a favorite paradox of mine, one which I have often repeated to young friends—the smaller your field the more work you can do. All out-door collectors will know what I mean. If obliged by circumstances, whatever they may be, to remain in one particular locality, however limited, one is apt to observe interesting details, discover new objects which are overlooked when one can wander far and wide at his own sweet will. I found this so, very markedly, last winter in Florida.

I spent three months, from December to April, at Palm Beach, on Lake Worth. During the greater part of that time I was, owing to the serious illness of a friend, confined closely to the house. We were staying at a hotel situated directly upon the ocean beach. It was necessary, for some weeks, that all my collecting should be done within sight of the hotel, that I might be near at hand and summoned in any emergency. And the time of my absence from the house never exceeded an hour.

I had, for years, known this beach well and thought I had exhausted its resources, but I made many interesting discoveries in those brief and restricted rambles.

All along the shore grows tall, stout beach grass—a *Uniola*. Mr. Schwarz has written of the insects living upon this grass. I found many of the species mentioned by him and one or two which he had not found there. A small, black weevil, a Barid, was always on the sand near the roots of this grass. It proved to be Casey's *Limnobaris limbifer*. I found dozens of this species. I tried to investigate its life history, but in vain. I could not find it in any stage, except as imago, though I feel confident of its living in root or stalk of the *Uniola*. A little higher up and farther from the water another weevil was very abundant on the sand under low plants. This was *Acalles clavatus*. One of the convolvulus family, *Ipomœa pes-capri*, or goats-foot morning-glory trails over the sandy beach everywhere. It has roundish shining leaves and its stem grows from ten to twenty feet in length. This is the native food

plant of *Cylas formicarius*, the sweet potato weevil. I found this fact out several years ago and wrote to the late Dr. Hamilton about it, sending him sections of the *Ipomæa* stem with this species within it, in all its different stages. The good Doctor was much interested and urged me to record the discovery, but I have never done so till now. Under boards and sticks upon the beach I found often an odd and showy Anthicid, new to me. It was *Anthicus currax* Champ. as Mr. Schwarz tells me, and is described and figured in the *Biologia Cent. Am.* Mr. Schwarz says it is a maritime species and that he has found it at Jupiter and Capron, in Florida, and has it also from Texas.

In similar situations the Staphylinid *Cafius bistriatus* is found in great abundance, also many specimens of *Philonthus alumnus*, common all along the coast. Under all kinds of debris the different species of *Phaleria* were very numerous, *P. picipes* being least common. As usual, there are upon the white sand many whitish insects, difficult to distinguish on their pale background. A horse-fly, *Tabanus psammophilus* of palest gray, a large cream-white spider, two or three of the cricket family, pallid and silvery, several species of Dolichopodidæ of greenish white; a tiny fly, just the color of the sand, *Rhincnessa albula*; these and many more pale, ghostly, shadowy creatures frequent the dazzlingly white sea sand, eluding, deceiving and aggravating the collector.

Two of the silvery crickets which I found on the sand were, respectively, *Cycloptilus squamosus*, known only, hitherto, from Texas, I think; and *Mogosoplictus slossoni*. This last genus I was so fortunate as to add to our fauna two or three years ago, its only American habitat heretofore being Chili. I found the species first under bark of fallen trees at Miami, Biscayne Bay, silvery, iridescent pearly little creatures, very agile and slippery.

One morning in March, just after an easterly storm, when for two or three days there had been a strong wind from the sea, I found on the beach some very odd, long-legged little beasts, not very unlike immature "water-boatmen." These were found to be, as Dr. Uhler wrote me, *Halobates wuellerstorfi*, a marine hemipter of the Hydrobatidæ, generally found far out

at sea. I saw scores of them, mostly dead, though a few showed signs of life—none were really active. Mr. Wickham wrote an exceedingly interesting paper concerning this species, published in *ENT. NEWS*, Vol. V, p. 45. He saw several specimens skimming on the surface of the water off Key West and also near Sand Key Light. This was in late June and early July. He speaks of their moving about "after the fashion of our common *Hygrotrechus*, but with extremely rapid movement," so that it was next to impossible to capture them from the vessel.

One hot day when there was a land breeze I heard people complaining of the "sand flies" along the shore, which made it almost impossible to stay there. This at once aroused my interest. Mr. Coquillett had spoken to me of a minute "midge," complained of by travellers in Florida and perhaps undescribed. I could not neglect this opportunity, so went to the beach as soon as possible. Sitting down on the sand under the lee of the bluff which skirts the shore, I was immediately made a martyr to science. Hundreds and thousands of these tiny flies swarmed about and over me, biting viciously, till my hands and face seemed pricked all over by red-hot needles. I secured many specimens. The fly is a *Ceratopogon*, perhaps *genualis*, a Cuban species, perhaps one new to science, so wrote Mr. Coquillett at the time; I have no more recent report. But I need no distinguished dipterist to tell me that the biting apparatus of this species is well developed and kept in good working order.

Notes on Missouri Springs.

By R. R. ROWLEY, Louisiana, Mo.

In May, 1899, Mr. G. M. Dodge of this place took two specimens of *Deidamia inscripta*, at apple blossoms, and in June following half a dozen or more imagines of *Amphion nessus* about persimmon blooms, thus confirming the writer's previously expressed opinion that they would be found among our Sphingial fauna.

A close watch of the food plants of both these moths gave

no larvæ of either, and the only compensation for expended time was a lone larva of *Thyreus abbotii* on wild grapes.

On August 17th, the writer found almost countless numbers of larvæ of *Daremma catalpæ* on catalpa trees in the town of Greenville, Mo. These caterpillars were of all sizes from those just hatched to those full grown. Earlier broods had defoliated the trees, and the new leaves were fast disappearing before this late summer brood. The underside of every leaf gave from two to six young larvæ, and the full-grown "worms" were crawling about on the ground in search of fit places in which to burrow.

On turning over some stones and boards, several pupæ and larvæ ready to pupate, along with dry pupal skins from which moths had escaped, were found.

Unable to take care of the larvæ, I sent a box each to G. M. Dodge, of Louisiana, and O. C. Poling, of Quincy, Ill., from both of whom I afterwards procured pupæ, and for the following description of the younger larval stages I am indebted to Mr. Dodge: "August 20th. Larvæ received August 19th. Length of youngest larva about $\frac{5}{8}$ of an inch. White above, green below. Head shining, black. Mandibles greenish. First segment or neck green. Dorsal line black, expanded anteriorly on each segment forming a pyriform spot. A black lunule embracing the straight black caudal horn. Horn starts backward.

"Subdorsal line black, interrupted, consisting of an irregular black dot on each segment (the posterior ones much the larger) connected by small black dots. A black spot follows the caudal horn.

"A larger specimen (length about one inch). The pyriform spots of the dorsal line become broader. It may be better described as a black stripe broadest on anterior part of each segment. The spots along the side are larger and connected by two dotted lines. First segment black above. Horn slightly recurved, base greenish.

"A third size (length about $1\frac{1}{8}$ inches) is distinctly yellowish on sides. The black spots have disappeared and the spiracles are marked by minute dots. The entire back is

broadly, velvety black, with two longitudinal broken rows of narrow whitish spots most distinct on the central segments. First segment yellowish green with a narrow curved line. The black of the back is bordered by a narrow white line which is itself margined outwardly by a very narrow more or less interrupted black line. In each form the prolegs are green with a black spot at their insertion on each side. True legs black."

The full-grown larva is $2\frac{1}{2}$ inches long, with black head, broad black dorsal line or stripe; long, slender, slightly incurved black caudal horn. There are two lateral broken lines of black between which the color is yellowish green. The ventral surface is greenish. True legs black. The head is rather large and more like that of *Hemaris* than the larger Sphinges. The whole larva differs greatly from that of *Darremma undulosa*, our only other species of the genus, and in its uniform thickness throughout it again recalls the larva of *Hemaris*.

The long wire-like caudal horn, slightly recurved in the full-grown larva, reminds one both of *Hemaris* and the younger caterpillars of *Philampelus*.

The very young larvæ are pale and crossed by rows of black dots.

The pupæ vary much in size and color, the largest chrysalid being over $1\frac{1}{2}$ inches in length and red-brown, while the smallest is hardly more than an inch and light yellowish brown. The burrow is not deep. The imago is much inferior to that of *undulosa* in color.

From one pupa the writer obtained a moth with one pair of wings much shorter, broader and more rounded at the extremities than on the opposite side. The antenna on the same side is shorter and weaker than on the other.

I found larvæ of *Actius luna*, feeding on persimmon, last July. Four of the large bombycids feed on this tree: *eccropia*, *promethea*, *regalis* and *luna*.

MRS. ANNIE TRUMBULL SLOSSON will, as usual, spend the winter in Florida. We will expect to receive more of her delightful collecting experiences.

A New Genus of Oortalidae.

By D. W. COQUILLETT.

Zacompsia gen. nov.

Near *Euxesta*, but the third antennal joint twice as wide as long and more slender, no acrostichal bristles, and the color not metallic. Body rather slender, front not punctured nor rugose, at the upper edge about one and one-half times as wide as either eye, antennæ as long as the face, the third joint about twice as long as wide, rounded at the apex, arista bare, occiput strongly convex, cheeks about one-fifth as wide as the eye-height, proboscis short and robust, palpi clavate; thorax bearing one pair of dorsocentral, two supra-alar, two posthumeral, one humeral, one mesopleural and one sternopleural bristle, scutellum bearing four bristles, femora bare on the under side; first vein bare, third and fourth veins converging toward their apices, lower outer angle of anal cell prolonged in the form of a rather long lobe, small and posterior crossveins nearly perpendicular. Type, the following species:

Zacompsia fulva sp. nov.

Reddish yellow, the proboscis, apex of the third joint of antennæ, the arista except its base, an ocellar dot, small spot on occiput above the neck, the tibiæ, whole of front tarsi and apices of the others, brown, all bristles and the short bristly hairs black; wings hyaline, marked with four indistinct grayish crossbands; the first is below the humeral crossvein; the second is very broad and extends from the stigma to beyond the fifth vein; the third begins midway between apices of the first and second veins and passes over the hind crossvein; the fourth borders the tip of the wing from slightly before apex of second vein to slightly beyond apex of the fourth; body subopaque, not pruinose except the white pruinose pleura; front opaque, vertex polished, orbits and frontal lunule white pruinose; length, 4.5 mm. A specimen of each sex and a third specimen with the apex of the abdomen broken off.

Hab.—Texas (Belfrage) and Opelousas, La. (G. R. Pilate).

Type: No. 5199, U. S. National Museum.

The specimens from Opelousas were submitted by Mr. C. W. Johnson, by whom they were received from Dr. Garry de N. Hough.

THE BEE AS A MESSENGER.—Says the *Westminster Gazette*: A West County farmer is training bees as letter carriers. A bee is taken away from home and a letter printed in microphotography is gummed to his little back, and he is thrown into the air. Home he goes like a carrier pigeon, and the advantage he would have over his big brother in time of war is obvious. It is very unlikely that he would be seen; and, if seen, it would tax the skill even of the finest Boer marksman to bring him down. This is an idea worthy of the attention of the War Office.—*Newspaper*.

A New Genus of Deticinae.

By JAMES A. G. REHN.

The species on which this genus is founded was described by the writer (Trans. Amer. Ent. Soc., XXVII, p. 89) as a species of *Capnobotes*, but a closer study of the descriptions and plates of allied genera has confirmed the belief that it is generically distinct. The generic characters would be as in the subjoined diagnosis.

NEOBARRETTIA n. gen.

Pronotum saddle shaped, the posterior portion being elevated much more than the anterior portion; pro- meso- and metasternum with paired spines, those of the metasternum being the stoutest and those of the prosternum the most slender; tegmina and wings abbreviated, the former broadly rounded.

Type.—*Capnobotes imperfectus* Rehn. Trans. Amer. Ent. Soc., XXVII, p. 89.

I take pleasure in dedicating this remarkable genus to Mr. Otis W. Barrett, who collected the three types at Rio Cocula, State of Guerrero, Mexico.

This genus is one of the most interesting and remarkable in the subfamily. The position of it would probably be between *Capnobotes* and *Apote*, though this is hardly more than conjecture, as I cannot examine specimens of those genera to study the correlation of characters which seem so distinctive in specimens of the new genus.

Professor Lawrence Bruner informs me that he has a specimen of the new genus collected by Mr. Barrett at the same locality.

Three New Species of Diptera.

By D. W. COQUILLETT.

In the course of investigating the spread of diseases through the agency of insects, Dr. L. O. Howard encountered three new species of Diptera, and as it is desirable to exclude from his report all matter of a purely technical nature, a description of the new forms is offered herewith:

***Chironomus halteralis* sp. nov.**

Head black, the palpi and antennæ yellowish brown, plumosity of male antennæ dark gray; thorax dark brown, the anterior end tinged with yellow, a pair of broad, gray pruinose vittæ on the posterior half of the mesonotum, the hairs light yellow; scutellum dark yellow; abdomen black, slightly polished, thinly covered with rather long yellow hairs; femora, tibiæ and tarsi yellow, bases of femora slightly tinged with brown; front tarsi slender, almost as long as the body, destitute of hairs, the first joint about twice as long as the front tibia; middle and hind tibiæ and their tarsi in the male thickly covered with rather long yellow hairs, much sparser in the female; halteres pale yellow, the knobs black; wings bare, hyaline, the apical half slightly darker, veins in the basal half yellow, in the apical half more brownish; length, 2 to 3 mm. Two males and two females. One of the females was collected May 16, 1899, by Mr. F. C. Pratt; the remaining specimens were collected May 22, June 2 and June 6, 1900, by Mr. Herbert S. Barber.

Hab.—Washington, D. C.

Type: No. 5202, U. S. Nat. Museum.

***Helicobia quadrisetosa* sp. nov.**

Black, the apices of second antennal joints, face and genitalia yellow, frontal vitta dark brown; front of male at narrowest part three fifths as wide as either eye, face yellow pruinose, third joint of antennæ three times as long as the second; body bluish gray pruinose, thorax marked with three black vittæ, the median one almost crossing the scutellum, four pairs postsutural dorsocentral bristles, the bristly hairs very short and depressed, abdomen with a blackish dorsal line and reflecting dark spots, second segment bearing a marginal row of small bristles of nearly an equal length and with a much longer lateral bristle, third and fourth segments each bearing a marginal row of bristles of nearly an equal length, longest on the fourth; first segment of the genitalia in the female also bearing a marginal row of bristles, in the male with a discal row of about six bristles; male hypopygium very large, polished, the first segment grayish yellow pruinose; hairs of legs very short, middle tibiæ of male each bearing a long bristle below the middle of the outer anterior side, on the posterior side with a short bristle at one-third its length and with a transverse pair of short ones at two-thirds of its length; hind tibiæ each bearing a pair of long bristles on the outer side near one-third of its length and with a second pair near two-thirds of its length in the female with an additional bristle, situated below the middle of the inner side of each middle and hind tibia; wings hyaline, costal spine very small, first vein bristly from slightly beyond base of second vein nearly to apex of auxiliary vein, third vein bristly almost to small crossvein; length, 4.5 to 6 mm. Two males and four females, collected by Mr. F. C. Pratt, in 1899.

Hab.—Travilah, Md. (June 10 and 20); Washington, D. C.

(May 12 and 29, and July 18) ; Snicker's Gap, Va. (July 18).

Type : No. 5395, U. S. Nat. Museum.

***Drosophila buskii* sp. nov.**

Head yellow, a black ocellar dot, center of upper part of occiput brown, two orange yellow frontal vittæ, converging anteriorly ; front bearing a few short bristly hairs, the two pairs of vertical bristles placed one in front of the other, three pairs of orbital bristles, the four bristles composing the two anterior pairs placed transversely, the inner pair directed forward, the others backward ; antennæ dark brown, the first two joints yellow, the third joint subequal in length to the second ; the bristle below each vibrissa about two-thirds as long as the latter ; mouth parts yellow ; thorax yellow, opaque, yellowish gray pruinose, mesonotum marked with seven black vittæ of which the median one is forked posteriorly, pleura marked with three black vittæ, the upper two sometimes united anteriorly ; scutellum yellow, the middle of the upper side next the base brown ; abdomen black, a median vitta, the first segment largely, front edge of the second, and the outer front angles of the others, yellow ; legs and halteres yellow ; wings hyaline, unmarked, costa extending to apex of the fourth vein, last section of fifth vein almost as long as the penultimate section of the fourth, last section of fourth vein twice as long as the preceding section ; length, 1.5 to 2 mm. Twenty specimens.

Hab.—Washington, D. C. (T. Pergande, D. W. Coquillett) ; Charlestown, W. Va. (A. Busck) ; Algonquin, Ill. (Dr. W. A. Nason).

Type : No. 5396, U. S. Museum.

Pieris occidentalis.—Last July, in Las Vegas, N. M., my little son Martin, found a number of larvæ which I took to be those of *Pieris protodice*, living upon *Cleome serrulata* (family Capparidaceæ). As the food-plant was a new one I requested him to rear the butterflies, so that we might be sure of the species. This he did, and when they emerged (3 ♂, 1 ♀) it turned out that they were not *protodice* but *occidentalis*. One specimen of a dipterous parasite was also bred ; this has been referred by Mr. Coquillett to *Chetogædia crebra* V. d. W.—T. D. A. COCKERELL.

CORRECTION.—In ENT. NEWS, Vol. X, Dec., 1899, pp. 288–289, I recorded the occurrence in New York of what I then supposed was the Mantid known as *Stagnomantis carolina*. This year (1900) I have bred the insect from eggs laid at Rochester, N. Y., and Mr. Scudder finds that it is the common praying *Mantis* of Europe (*Mantis religiosa*), which has never before been recorded in America. I have just published a full account of this interesting introduction of a new beneficial insect in Bulletin 185 of the Cornell Experiment Station, a copy of which I will gladly send to any one interested.—M. V. SLINGERLAND.

A New Variety of *Lepisesia*.

By DAVID BRUCE, Brockport, N. Y.

Lepisesia ulalume var. *rachel*.

Expands $1\frac{5}{8}$ inches, thus is somewhat smaller than *ulalume*, and has the light colored bar which crosses primaries and secondaries, lighter in color, wider and more distinct than in *ulalume*. This variety may be known at once from the sulphur-yellow color of the head, thorax, collar and patagiæ, whereas in *ulalume* the collar and thorax are intense black.

Utalume was described and figured by Dr. Strecker in his Rhop. and Het., and the type was taken in Oregon by Prof. O. B. Johnson. I was collecting larvæ of *Alypia lorquini* on *Epilobium* and found a large *Sphinx* larva looking very much like that of *T. abbotii*. The anal horn was absent, and a shining button was in its place. I fed it carefully and it pulled a leaf or two over itself on the soil and pupated, and appeared as a moth in February. The specimen is therefore from Colorado, and is now in the collection of the Academy of Natural Sciences of Philadelphia.

PROF. W. G. JOHNSON, State Entomologist, located at the State Agricultural College of Maryland, resigned his position on December 14th, to accept the editorship of the "American Agriculturist," which has offices in New York, Springfield, Mass., and Chicago, Ill. He will locate permanently in New York. Prof. Johnson leaves Maryland with the esteem and good-will of those acquainted with his work. The Horticultural Society of Maryland at a recent meeting adopted resolutions stating that the Association was justly proud of the eminence Prof. Johnson had acquired throughout the United States by reason of his devotion to and proficiency in his profession. It is likely that Prof. H. P. Gould, Prof. Johnson's assistant, will succeed him as State Entomologist.

MR. G. WESLEY BROWNING, of Salt Lake City, Utah, is not only an entomologist but also an artist of ability. Last year he very kindly made the drawing, *Stenopelmatus fasciatus*, for the cover of the NEWS, and this year he has made for us the fine drawing of both sexes of *Epicallia virginalis*. This species is abundant in July in the beautiful canon which supplies Salt Lake City with water from the Wasatch Mountains. Mr. Browning has a most interesting field of work, as the individual canons in the Wasatch seem to have a few species not found in the others. The sand dunes between Saltair and Garfield Beach on the Great Salt Lake would doubtless repay careful study, and might prove a mine of entomological treasures.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., JANUARY, 1901.

A correspondent sends us the following :

"I would like to get your opinion as well as others upon the subject of establishing some sort of a black-list to protect well-meaning collectors from impositions practised upon them by some unscrupulous collectors in different parts of the country. Although the value of butterflies and moths may be small, still there are some who knowing the swindled ones have no redress take advantage of the confidence imposed in them by others to swindle and cheat them in making exchanges. I understand that in England, after due examination and inquiry, a black-list is published by the representative journals, and I think it would be a good scheme to adopt here."

We have known of but few cases, in an extended experience, where persons have made a practice of this mean kind of swindling, and such swindlers soon become known to collectors and exchangers. Such a list would have to be gotten out with the greatest care as some people have grievances without any logical basis. Also we are not informed as to the legal aspects of the case, and would be pleased to hear from any of our subscribers in regard to our right to publish such a list.

Entomological Literature.

COMPILED BY P. P. CALVERT.

Under the above head it is intended to mention papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology will not be noted. Contributions to the anatomy, physiology and embryology of insects, however, relating to American or exotic species, will be recorded. The numbers in **HEAVY-FACED TYPE** refer to the journals, as numbered in the following list, in which the papers are published; * denotes that the paper in question contains descriptions of new North American forms. Titles of all articles in foreign languages are translated into English; usually such articles are written in the same language as the title of the journal containing them, but when such articles are in other languages than English, French, German or Italian, this fact is indicated in brackets.

2. Transactions of the American Entomological Society, xxvii, 1, Philadelphia, Oct., '00.—**3.** The American Naturalist, Boston, Nov., '00.—**4.** The Canadian Entomologist, London, Ont., Dec., '00.—**5.** Psyche, Cambridge, Mass., Dec., '00.—**9.** The Entomologist, London, Dec., '00.—**12.** Comptes Rendus. L'Academie des Sciences, Paris, '00.—**13.** Comptes Rendus. Societe de Biologie, Paris, Oct. 27, '00.—**15.** Biologia Centrali-Americana, pt. clviii, London, Oct., '00.—**21.** The Entomologist's Record, London, Nov., 15, '00.—**37.** Le Naturaliste Canadien, Chicoutimi, Quebec, '00.—**38.** Wiener Entomologische Zeitung, xix, 9, Nov. 5, '00.—**40.** Societas Entomologica, Zürich-Hottingen, '00.—**56.** Mittheilungen, schweizerischen entomologischen Gesellschaft, x, 7, Schaffhausen, Oct., '00.—**58.** Revista Chilena de Historia Natural, Valparaiso, Sept., '00.—**80c.** Comunicaciones, Museo Nacional de Buenos Aires, i, 7, Oct. 9, '00.—**64.** Annalen, k. k. Naturhistorisches Hofmuseum, xiv, 3-4, Vienna, 1899, rec'd. Nov. 18, '00.—**65.** La Feuille des jeunes Naturalistes, Paris, Dec. 1, '00.—**68.** Science, New York, '00.—**82.** Centralblatt für Bakteriologie, Jena, '00.—**83.** Notes from the Leyden Museum, xxii, 1-2, July, '00.—**84.** Insekten Börse, Leipsic, '00.—**116.** Biological Bulletin, ii, 2, Boston, Nov., '00.—**140.** Proceedings, Washington Academy of Sciences, ii, '00.—**141.** Proceedings, Indiana Academy of Sciences, 1898, Indianapolis, 1899, rec'd. Dec. 4, '00.—**142.** First Report, Michigan Academy of Sciences, Lansing, '00.—**143.** O. S. U. Naturalist published by the Biological Club of the Ohio State University, i, 1, Columbus, O., Nov., '00.—**144.** The New York Medical Journal, '00.—**145.** Mittheilungen, naturwissenschaftliches Vereins für Steiermark, Graz.

THE GENERAL SUBJECT.—**Bengtsson, S.** On the so-called "heartbodies" [Herzkörper] of insect larvæ as well as a contribution to knowledge of blood tissue, Bihang till K. Svenska Vetenskaps Akademiens Handlingar, xxv, 4, Stockholm, 1899.—**Porter, C. E.** Vital resistance of some Chilian arthropods [in Spanish], **58.**—**Volger, B.** Insects in proverb and poetry, **84**, Nov. 15, 22, 29.—**Williamson, E. B.** Biological conditions of Round and Shiner Lakes, Whitley County, Ind., **141.**

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Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

CORRECTION.—On last line, p. 614, the date 1898 is given as the time Dr. Hulst was connected with Rutgers College, whereas the year was in reality 1889.

MR. PHILIP LAURENT will spend several months collecting in Florida. He has lately returned from a visit to Mr. O. D. Foulks, of Stockton, Md., who has a fine place for gentlemen interested in quail and duck shooting. Mr. Foulks is also a well-known entomologist.

Clisiocampa fragilis.—Now that so much is being written about the ravages of the eastern species of *Clisiocampa*, it may be worth while to report that *C. fragilis* has been exceedingly destructive the last two summers in Sapello Canon, N. M., and the adjacent territory, especially defoliating the quaking aspens (*Populus tremuloides*). From cocoons gathered at Beulah I bred a parasite, identified by Mr. Ashmead as *Pimpla*

atrocoxalis Cresson. No dipterous parasites have yet been reported from this species, but doubtless *Archylas analis*, reported from *Clisiocampa californica*, and *Tachina mella*, reported for *Clisiocampa* sp. at West Cliff, Colo. (see Coquillett, Revision of the Tachinidæ) were in reality bred from *C. fragilis*.—T. D. A. COCKERELL.

MR. W. G. FREEDLY, JR., states that *Limnites orthemis* was very scarce at East Dorset, Vermont, during the past summer. It is usually there in great abundance. He also reports the capture of *Callidryas eubule* at the same place on August 27th. This is a very rare species in New England, especially in the northern part.

Lasiocampa medusa Strecker.—My friend Dr. Abbot, of Pasadena, while on a visit to his ranch near San Diego, Cal., found one of these moths in his tent, and about the same time a man working on the place found another. Thinking they might be something good, judging from their size and general appearance, Dr. Abbot turned them over to me. The two specimens agree almost exactly with Dr. Strecker's description in ENT. NEWS, January, 1898, except as to size, my specimens being $3\frac{3}{4}$ inches in expanse of the wings. On comparing with *arizonensis*, they prove to be very distinct by their heavy appearance and thick hair on the abdomen. The specimens were shown to several other collectors in this vicinity and they were of the same opinion as to the identification of the species. Dr. Strecker's specimen is the only other known as far as I know, so I thought this would be worth recording.—FORDYCE GRINNELL, JR., Pasadena, Cal.

YOUR naptha launch story in last issue may do very well in the United States, but is nothing for a country where we feed pigs on the salmon thrown ashore, and stop railway trains with tent caterpillars. Last fall, writer's company put down quarter of a mile of small-sized water pipe and afterwards found that nearly every section was stopped up by *crickets*. It had been lying on the ground at the time first frosts reminded crawling things of winter quarters, and was literally so packed that we could not shake or force the creatures out, but had to dissicate them. In time and trouble they easily cost us a couple of hundred dollars. Entomologists! come to Canada.—DWIGHT PRAINERD, Montreal, Dec. 10, 1900.

AT TOKIO, toward the close of May and the beginning of June, one sees suspended under the verandas of houses beautiful little cages of bamboo from which break upon the ear strange little metallic whistlings of light trills, which fill the air with delicate music. The musical sounds are emitted by certain insects. Listening to these minute singers has been for many centuries a favorite pastime of the Japanese. The most prized of these singing insects is the *suzumushi*. Its name means "insect bell," and the sound which it emits resembles that of a tiny silver bell. It is a tiny black beetle, of a flat body and very vulgar appearance. The

kutsuwa-mushi is so named because its cry resembles the sound made by a horse in champing the bit. There are two species of it, the one a light yellow and the other a pale green. This insect is none other than a kind of winged grasshoper, common in many countries.—*Newspaper*.

Diaspis piricola.—Mr. Marlatt, in his interesting article in ENT. NEWS, November, credits the combination *Diaspis piricola* to Francesco Saccardo, but that writer did not propose any such name; nor did Berlese, who also pointed out the generic position of Del Guericio's species. Both these writers proposed to continue the erroneous name *Diaspis ostreaformis*. The first occurrence of the combination *Diaspis piricola*, so far as I know, is in Bull. 6, Tech. Ser., Div. Ent., p. 4 (1897). The method of double citation (of the authors of the name and of the combination), while customary in botany, is not so usual in zoology; but when it is employed care should be taken to follow the rules governing it.—T. D. A. COCKERELL.

Doings of Societies.

By invitation of Mr. Wm. D. Kearfott, of Montclair, N. J., the Newark Entomological Society held its regular meeting at his residence, Sunday, December 9th. Seven members present, President Buchholz presiding. Visitors, Mr. Braun, of Newark, N. J., Messrs. Watson and Comstock, of New York.

Mr. Kearfott entertained his visitors very agreeably, exhibited his extensive collection, consisting of Lepidoptera from all quarters of the globe, it being especially rich in the microlepidoptera of N. America, to which, of late, he has been directing his main efforts, and among these are probably many undescribed species of Tineidæ. Excellently mounted on silver wire and polyphorus strips, these small forms made a beautiful and very artistic exhibit. Mr. Kearfott also explained his method of inflating larvæ, exhibiting the requisite apparatus, his collection containing inflated larvæ of over 500 species, among them, several examples of *Daremma catalpa*, only recently recorded, from New Jersey.

Mr. Kemp reported the capture of *Spragueia dama* at Anglesea, N. J., September 3d.

"Aberrations and other odd forms," were made the subject for discussion and illustration at the next meeting.

S. T. KEMP, *Secretary*.

A meeting of the American Entomological Society was held October 25th. Dr. P. P. Calvert, President, in the chair. Mr. H. W. Wenzel donated a large and interesting collection of ants from the vicinity of Philadelphia and certain places in New Jersey. They were taken while searching for *Pselaphidæ* and *Scydmaenidæ*. Mr. C. Schaeffer of the American Museum of Natural History, New York, called attention to a mistake in most collections of Coleoptera. The Cerambycids *Acanthocinus obliquus* and *pusillus* were considered synonymous, the latter being placed as a synonym of the former by Bates, whereas they are quite distinct, according to the speaker, who pointed out marked differences in the elytra and punctuation. Mr. Liebeck exhibited a paper-knife with a rabbit-foot handle, the hide of which had been entirely eaten by an insect, nothing being left but the bones. The insect doing the damage was probably *Tinea biselliella*. Mr. Wenzel exhibited fourteen specimens of *Cychnus elevatus* showing great variation in size and other characters. Mr. Schaeffer exhibited a species of Coleoptera from Florida which is near the genus *Anomala*, but quite distinct. Mr. Wenzel said that in Mr. Schwarz's paper on Myrmecophilus insects he had mentioned *Adranes cæcus* as being found with but one species of ant, but the speaker had found this species with four species of ants as follows: *Lasius mixtus*, *alienus* var. *americanus*, *Lasius aphidicola* and *Aphænogaster aquia*. He also corroborates Mr. Schwarz's observation in regard to *Batrisus ione* being found only with *Lasius alienus* var. *americanus*. A colony of *Formica integra* was examined in the fall and 14 specimens of *Cydus zieglei* were taken. The following week the ants had entirely disappeared. The very minute species of *Scydmaenidæ*, belonging to the genus *Opressus*, are exceedingly swift runners. Mr. Liebeck said he had seen *Heterius brunneipennis* from a large ant's nest brought to the Academy.

Dr. Calvert mentioned two dragonflies brought in by Mr. Daecke which had been taken at Manumuskinn, N. J., and said *Gomphus plagiatus* was new to the New Jersey list, although the speaker had taken it in Pennsylvania. Mr. Liebeck men-

tioned putting Dermastid larvæ in a tin box and subsequently found cast-off skins and nothing else. Dr. Calvert spoke of the egg of the common fruit fly with its two processes, one half as long as the egg, and these processes seem to have small air cells.

HENRY SKINNER, *Secretary*.

A meeting of the Entomological Section of the Academy of Natural Sciences of Philadelphia was held November 22nd. Mr. Philip Laurent, Director, presiding. Mr. Laurent donated two specimens of the blown larva of *Hemileuca maia*. Dr. Calvert recorded the occurrence of a single male dragonfly *Sympetrum (Diplax) vicinum* Hagen by the pond in the Botanical Garden of the University of Pennsylvania, November 21st. This is believed to be the latest date yet recorded for this species in this locality;* in his Catalogue of the Philadelphia Odonata (1893), he had given October 26th as the latest, stating, however, that the species would probably be found still later, a prediction now verified. The occurrence of this individual yesterday is the more interesting, because on November 16th the maximum and minimum temperatures for Philadelphia are officially given as 42° F. (5.5° C.), and 29° F. (—1.7° C.) respectively; although on November 22nd the maximum and minimum were 74° F. (23° C.), and 65° F. (18° C.) respectively. The individual was captured, identified and released; it was quite lively when set free. Dr. Calvert also called attention to a valuable paper by Dr. Justus Watson Folsom on the mouth parts of *Anurida maritima*, one of the Collembola. The interesting features of the paper were mentioned. Dr. Skinner exhibited a variety of *Pieris protodice* and made some remarks on the species in conjunction with *Pieris occidentalis*. Mr. Reinick said he had spent ten days on the Jersey coast at Atlantic City in October. While out fishing he

* On November 23d, I found a female of this species in the same locality, but have not been able to find any individuals later. The other dates in November on which I saw this species at this pond were the 5th (ovipositing), 6th, 7th and 10th.—P. P. CALVERT.

Mr. Laurent referred to the great damage done by *Pieris rapæ* in Pike and Monroe Counties, Pennsylvania, and in sections of New Jersey.

In reply to Prof. Smith, he stated he had seen the caterpillars of *rapæ* at work.

Prof. Smith said that *Plusia brassicæ* had done the most injury to cabbage in south New Jersey.

Prof. Smith spoke of the death of Rev. Geo. D. Hulst, on November 5th, and referred to his entomological work.

On motion, the following resolutions presented by Prof. Smith, were adopted :

Resolved, That in the death of Dr. George D. Hulst, entomology has lost an able worker in his very prime, and when the character of his publications showed that his best was just being given to us. This is a loss to be regretted by the members individually and as a body, and they hereby record their sorrow and regret,

Resolved further, That the character of the deceased was such, that the loss of the man is equal to the loss of the scientist; to be regretted by all who admire justness and uprightness in thought and speech,

Resolved further, That this minute be spread upon the records of the Social and that a copy be forwarded to the family of the deceased by the Secretary.

Mr. E. Daecke was unanimously elected a member of the Social.

WILLIAM J. FOX, *Secretary*.

OBITUARY.

Dr. Otto Staudinger died at Lucerne, Switzerland, on Oct. 13th, in his seventy-first year. He was well known to American students of the Lepidoptera.

A letter just received from M. René Martin contains the sad news of the death of M. le Baron Edmond de Selys-Longchamps, the greatest authority on the Odonata. His decease occurred a few days previous to December 13th, but the exact date is not mentioned. We shall give a notice of his life and labors in the February number.—P. P. CALVERT, Dec. 26, 1900.



Edm. de Selys Longchamps

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

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Baron Edmond de Selys-Longchamps.

The present classification of the Odonata, like that of all groups of living things, is the result of the studies of several generations, but it has advanced more during the second half of the nineteenth century than at any other period. In those fifty years excellent work on these insects has been done by a number of entomologists of the first rank. Yet it will not be unjust to them, to state that the present condition of that classification is due more to de Selys-Longchamps than to any other individual. The more eminent of his co-workers in this department of entomology, indeed, were highest authorities in other departments as well. This does not detract from the great merit of de Selys, for much of the time which they devoted to study, he gave to the service of the State. But his interests as a naturalist were not confined to insects; they extended to the Belgian fauna generally, to mammals, birds, trees and meteorological phenomena, and he wrote on all of them.

His life was long; his first and last scientific publications

are separated by an interval of sixty-nine years; his political services covered fifty-eight. Our interest in him is chiefly entomological; he *was* the "Maitre de l'Odonatologie," the "Altmeister," the chief systematist in this field who has yet appeared.

MICHEL EDMOND, BARON DE SELYS-LONGCHAMPS was born in Paris, May 25, 1813, and died at Liège, Belgium, December 11, 1900. He studied in the University of Liège, and early took up his residence at Longchamps, near Waremme, fifteen miles westward. In 1841 he became communal councillor of Waremme, was provincial councillor of the same canton from 1846 to 1848, member of the Chamber of Representatives for Waremme in 1848, elected to the national Senate for that arrondissement, February 13, 1855, and held the seat until his refusal to accept a new term at the general election of May, 1900. In 1879, the Senate elected him Vice-president, and on August 3, 1880, its President; he left the chair in 1884. He had also been President of l'Association liberale de Waremme, and Envoy Extraordinary to the court of Italy. In his letters he frequently referred to the great amount of time consumed by his senatorial duties. His resignation of them, he wrote to an American correspondent, was due to

"my age; the precautions for my health on account of the frequent residence in Brussels during the bad season in winter; the desire to live in my family for the few years that remain to me; and above all to enjoy a little liberty which will permit me to work at *nos chers Odonates*, on which I am very much behindhand on account of the Senate" (letter of June 8, 1900).

His first publication on natural history was a few pages devoted to the birds and insects of the province of Liège in the *Dictionnaire géographique* of that province by Ph. van der Maelen, Brussels, 1831. This was at the same time his first essay on the Odonata, followed in later years by some 114 others to the very December that saw his death. These memoirs and notes, for they are of very varying length, seem naturally to fall into three groups which, to a certain degree, are also chronological.

The first group deals almost exclusively with the European

species and embraces the years from 1831 to 1851. The results are summarized in the two chief works of this period *Monographie des Libellulidées d'Europe*, Paris, 1840, and *Revue des Odonates ou Libellules d'Europe*, Brussels, 1850. The *Monographie* was undertaken chiefly to co-ordinate the work of his predecessors, Vander Linden (1820, 1825), Hansemann (1823), Charpentier (1825), Fonscolombe (1837, '38), Leach (1815), Stephens and Curtis, most of whom had published in ignorance of the results of the others. The *Revue* was a complement and supplement to the *Monographie*, and is also important as marking the beginning of that co-operation with H. A. Hagen, of which de Selys wrote in 1895, "I owe much to his friendship, to his communications and to his collaboration during the fifty years through which our intimate relations have lasted without interruption." Their correspondence began in 1841; in the Spring of 1843 they met in Paris and soon after Hagen offered his co-operation to de Selys. "This precious offer" was thankfully accepted. The story is told in the "Avertissement" to the *Revue*.

The second period is that of the monographic revision of the Odonata of the world. It may be dated from 1853 to 1886. In the *Revue*, de Selys had given notice of his intention to extend his researches to the exotic forms. He had already acquired the collections of Latreille, Rambur, Audinet-Serville and Guérin-Méneville with this end in view. The first fruits were the *Synopsis des Calopterygines*, 1853, a synopsis as well of the *Monographie des Calopterygines*, with Hagen's aid, of 1854. The latter, said the authors in their preface,

"is in our thoughts only the commencement of a History of the Odonata that we hope to bring to an end in a few years. Our project is to publish successively, under the form of monographs, the five or six subfamilies that constitute the Odonata, and of which we already know about a thousand species."

The *Synopsis* (1854) and *Monographie des Gomphines* (1858) followed, the latter three years later than expected. Five installments of the *Synopsis des Agrionines* (1860-65) left that group unfinished. Hagen, who had drawn the illustrations for the two preceding monographs, also made many for the pro-

jected *Monographie des Agrionines*, which never saw the light; the drawings remain at Cambridge, whither Hagen removed in 1867. Materials poured in on de Selys from all parts of the world, necessitating four *Additions* to the *Synopsis* of the Calopteryginae and four to that of the Gomphinae (1859-1878). A *A Synopsis des Cordulines* 1871 and two *Additions* 1873, '78, appeared, and after an interval of eleven years the *Synopsis des Agrionines* (1876, '77) was completed. A brief *Synopsis des Aeschnines* 1883 and a *Revision du Synopsis des Agrionines* 1st part, 1886, close this period. In 1871 he observed that

"the publication of the works which I have undertaken has not marched with the rapidity I have desired, the delays arising principally from the continual reception of new material, and from the desire which I have to perfect the classification and to know species already described, but which I have not been able to examine myself."

As the improbability of the completion of the *Monographs* increased, the *Synopses* became more detailed. The *Libellulinae* alone of all the Odonata were never reached.

The third group are chiefly faunal papers, and while they began as early as 1857, they did not occupy much of his working time, nor were they extensive until 1878, '79, when two memoirs on the Odonata of New Guinea appeared, followed by others on those of the Philippines 1882, '91, Japan '83, the Palæarctic *Diplax* '84, Asia Minor and the European fauna '87, Belgium '88, Sumatra '89, the Kirghis steppes '89, and Burma '91. After this date, the papers are shorter and deal with limited groups.

There is no space here to discuss de Selys' contributions to knowledge of the Odonata. Early in his career he avowed that he was not an anatomist. But he has created the classification, he has described the large majority of the known forms. His collection, in 1896, when seen by the writer, was more extensive than any other in the world. His accuracy and carefulness have never been questioned. Even in his age, his activity and interest never abated, and he seemed to be fully in touch with the suggestions and improvements devised by the same generation of students as that to which his grandchildren belonged:

He married Sophie Caroline d'Omalius d'Halloy, daughter of a fellow member of the Belgian Academy; she died many years ago. It was his habit to reside at Longchamps during the Summers, at Liège in Winter. With him dwelt his eldest son and family, a most devoted and vivacious household. The residence at Liège, Boulevard de la Sauvenière 32, contained his general collection of Odonata; at Longchamps, a building separate from the chateau, contained his extensive collection of European birds and mammals, the former being almost complete, and a collection of the insects of Longchamps. To study these collections came visitors from Europe and America, receiving every encouragement and the kindest hospitality.

The Master was aimiable, and the greatest affection was felt for him. "Venerable and venerated friend," wrote the chief English neuropterist; "je suis bien desolé," came from France with the announcement of his death. For some years past, as each birthday approached, a letter from America extended the best wishes for his ensuing year and reiterated the assurance of personal affection dating from two visits to Longchamps. When he declined to continue as Senator,

"my fellow citizens, electors, and a great number of friends and colleagues of the Senate and of the Chamber of Representatives came to make an enormous manifestation at Longchamps, May 24."

Probably no other entomologist of these later years has been equally honored by his co-workers. He was Honorary President, as he had been the first, of the Entomological Society of Belgium, and honorary or corresponding member of the entomological societies in Paris, London, Berlin, Florence, Vienna, Stockholm, Dresden, Stettin, Berne, Helsingfors, Philadelphia, and of the other scientific bodies throughout the world; the date of his election as such in the Academy of Natural Sciences of Philadelphia is as far back as 1842. In Belgium, he was given the Grand Cordon of the Order of Leopold, and he had received several other similar decorations.

And now the long and active life is ended. In the truest sense, do we "*recommander son âme a vos pieux souvenirs.*"

P. P. C.

Flower and Insect Records from New Mexico.

By T. D. A. COCKERELL.

The following records are offered as a contribution to the knowledge of the relations between insects and flowers. It is perhaps hardly necessary to say that in New Mexico this subject is a new one, and there is no part of the Territory where half an hour's observations at the right season will not yield unrecorded facts. Unfortunately, however, this ease in making new observations goes with the greatest difficulty in getting them recorded, for the reason that both flowers and insects are imperfectly understood, and in many cases only identified by the expenditure of much time, or through the assistance of specialists. Even many of the conspicuous roadside flowers have lately proved to be undescribed, and there still exists an uncomfortable possibility that several of the now-accepted names may require revision, although they are endorsed by the best authorities.

A being from another planet, after visiting one of our great city markets, might be so impressed by the variety of foods offered for sale as to report that mankind ate everything, was literally omnivorous. So a casual observer of the habits of insects might infer that they visited all sorts of flowers, and that it was useless to make records of flower-visits. Close study, however, shows us that this is far from being the case, and even those species which visit many kinds still have preferences and their aversions. At the same time it must not be inferred in any case that the insects reported to visit a flower are the only ones visiting it; for setting aside those which may have been collected but not yet identified, no flower has yet been watched sufficiently for us to make an exhaustive list of its insect-visitors.

COMMELINACEÆ.

Commelina dianthifolia D. C.—Visited by *Bombus prunellæ* Ckll.

IRIDACEÆ.

Iris missouriensis Nutt.—Visited by *Bombus iridis* Ckll. and Porter, *B. ternarius* Say, and *B. juxtus* Cress.

SALICACEÆ.

Salix sp., at Mesilla, May 4, 1897 (Ckll.). The following bees at the ♂ flowers: *Prosopis mesillæ* Ckll., ♀; *Perdita salicis* Ckll., ♂ ♀; *Halictus subobscurus* Ckll., ♀.

Salix sp., at Las Vegas Hot Springs, 1899 (Wilmatte Porter). Hym.: *Andrena portleræ* Ckll., ♀.

Salix sp., at Beulah, Sapello Canon, May 30th (Wilmatte Porter). Hym.: *Andrena sapellonis* Ckll.; *Halictus armaticeps* Cr., ♀; *Osmia faceta* Cr., ♂.

CHENOPODIACEÆ.

Atriplex canescens (Pursh)—At Mesilla Park, April 29th, a honey-bee (*Apis mellifera ligustica* Spin.) was observed busily working on the flowers.

NYCTAGINACEÆ.

Abronia turbinata Torrey—Lep.: *Synchlæ lacinia* Geyer, Mesilla Park, April 29th (Ckll.).

Wedelia incarnata (L.)—*Anthophora maculifrons* Cress., Las Cruces, August 23rd (Townsend).

RANUNCULACEÆ.

Pæonia (cultivated)—Hym.: *Agapostemon texanus* Cress., Las Vegas (W. Porter).

Delphinium scopulorum Gray--Hym.: *Bombus nevadensis cressoni* Ckll.; *B. appositus* Cress.

CRUCIFERÆ.

Dithyrea wislizenii Engelm.—Lep.: *Synchlæ lacinia* Geyer, Mesilla Park, April 25th (Ckll.).

Erysimum asperum (Nutt.)—Hym.: *Halictus angustior* Ckll., Rio Ruidosa (Townsend).

Lepidium eastwoodiæ Wootton—Hym.: *Augochlora neglectula* Ckll., La Cueva, Organ Mts. (Townsend).

Sophia andrenarum Ckll., ined. (The common species with yellow flowers in the Mesilla Valley, confused at first with *Sisymbrium canescens*, later with *S. halictorum*, but quite distinct. True *Sophia halictorum* has very inconspicuous flowers, and occupies, in the main, a higher zone, coinciding with the lower part of the *Larrea-zone*)—(1.) Mesilla, April 12th; Hym.: *Andrena salicinella* Ckll., ♂, in numbers, hovering over the plants and alighting occasionally: *Augochlora neglectula* Ckll.; *Halictus pectoraloides* Ckll., ♀; *H. subobscurus* Ckll., ♀; *H. pseudotegularis* Ckll. var.; Dipt.: *Tetanops polita* Coq., det. Coq.; *Chlarops assimilis* Macq., det. Coq. (2) Mesilla, April 22nd; Hym.: *Agapostemon texanus* Cress., ♀. (3) Mesilla Park, April 27th; Hym.: *Apis mellifera ligustica* Spin.

CAPPARIDACEÆ.

Cleome serrulata Pursh.—The following insects were all collected on the flowers at Las Vegas in 1899:—Hym.: *Halictus sisymbrii* Ckll., ♀, July (Ckll. and W. H. Rishel); *Agapostemon texanus* Cress., ♀, July (N. Stern and A. Garlick); *Andrena argemonis* Ckll., ♀, July 20th (W. Porter); *Anthidium parvum* Cress., ♂ ♀, June 23rd (Ckll.); *A. perpictum* Ckll., ♂, August 1st (Ckll.); *Melissodes agilis* Cress., ♂ var., July 17th (A. Garlick); *M. gilensis* Ckll., ♀, July 20-22 (W. Porter); *M. grindeliæ* Ckll., ♀, July 22 (W. Porter); *M. pallidicincta* Ckll., ♀, July (Ckll., N. Stern); *M. tristis* Ckll., ♂ (probably the ♂ of *pallidicincta*), July 20th (Ckll.); *Anthophora cardui* Ckll., ♂, July 11th (Ckll.); *A. cleomis* Ckll., ♀, August 1st (W. Porter); *A. montana* Cress., ♀, July (M. Winters, N. Stern, A. Garlick); *A. occidentalis* Cress., ♀, July 20th (W. Porter); *Cælixys rufitarsis* Sm., ♂, July 11th (Ckll.); *Megachile cleomis* Ckll., ♂ ♀, July (N. Stern, W. Porter, etc.); *M. latimanus* Say, ♀, July (Ckll., N. Stern, M. Winters); *Bombus americanarum* Fabr.; *B. morrisoni* Cress.; *B. nevadensis cressoni* Ckll.; *Apis mellifera ligustica* Spin.; *Pelopæus servillei* Lep., July 10th; *Sphex* (*Chalybion*) sp.; *Astata* sp.; *Sphex ichneumonea* L., July 22nd (W. Porter). Diptera: *Odontomyia inæqualis* Loew. det. Coq., August 1st; *Comptosia macellaria* Fab., July 11th; *Eristalis latifrons* Loew., July 11th; *Lucilia* sp.; *Silvius* sp.; Lep.: *Colias eurytheme eriphyle* Edw., ♂, July 2; *Pyrameis cardui* L., July 15th (W. H. Rishel); *Papilio* sp.; *Ctenucha venosa* Walk., July 16th (N. Stern); *C. cressonana* Grote, July 12th (W. H. Rishel). Hemip.: *Lygæus reclinatus* Say, July 11th; *Murgantia histrionica* Hahn, July 11th (M. Winters, N. Stern). Coleop.: *Nemognatha bicolor* Lec., July 5th (N. Stern); *Hippodamia convergens* Guér., July 11th, very abundant; *Zonitis atripennis* July 10th, abundant; *Clerus abruptus* Lec., July 10; *Cantharis biguttata* July 11th (N. Stern).

SAXIFRAGACEÆ.

Philadelphus argyrocalyx Wooton.—Dipt.: *Volucella anna* Willist.; vide Townsend, Pr. Texas Acad., 1897, p. 53, where the plant is given as *P. serpyllifolius*.

Ribes sp. (wild gooseberry).—Hym.: *Vespa diabolica fernaldi* Lewis, Beulah, May 30th (W. Porter).

Ribes sp. (wild gooseberry).—Hym.: *Osmia ribifloris* Ckll., ♀, *O. lignaria* Say, var. and ♀, *Cælixys ribis* Ckll., ♀, *Anthophora porterae* Ckll., ♂; Dipt.: *Epalpus signifera* Walker; all at Romersville, April 29th (W. Porter).

ROSACEÆ.

Fallugia paradoxa acuminata Wooton.—Flowers large, 26-40 mm. across (mostly of the larger size); stamens large, with large anthers; car-

pels concealed to the last in the bottom of the flower, their tips not above the level of the bases of the stamens; bracts and sepals frequently divided. Hym: *Apis mellifera ligustica* Spin., very many, April 30th, May 3rd; *Agapostemon splendens* Lep. var. ♀ (new to N. M.), April 30th; *Colletes* sp.; *Halictus sisymbrii* Ckll., ♀, April 30th; *Halictoides fimbriatus* (Cress.), ♀ var. (new to N. M.), April 30th; *Philanthus* aff. *albopilosus*, May 3rd; *Sphecodes* aff. *fortior*, May 3rd; Dipt.: *Compsomyia macellaria* Fabr., April 30th. Lep.: *Pyrameis cardui* L., April 30th; *Anosia stigosa* Bates, April 30th. All near Mesilla Park.

Fallugia micrantha n. sp. or var. Flowers small, 23-26 mm. diam.; carpels protruding, forming a green blunt cone, longer than the stamens, which are small, with small anthers; sepals rounded-truncate, with a green acuminate appendage about 2 mm. long, occasionally with two appendages; bracts linear, entire and simple, $3\frac{1}{2}$ -4½ mm. long; leaves and stems like *acuminata*. Hym.: *Oxybelus* sp.; *Apis mellifera ligustica* Spin.; *Philanthus* aff. *albopilosus*. Hemip.: *Phymata fasciata* Gray. All near Mesilla Park, May 3rd.

When first I found *F. micrantha* I thought it might be a dimorphic form of *F. paradoxa acuminata*, tending toward a dioecious condition, but against this is the fact that both forms fruit abundantly; and while some plants of *acuminata* were observed to have less fruit than usual, others were covered with fruit. Neither is the difference described owing to any difference in the age of the flowers; it is equally apparent in the old flowers and in the unopened buds. I therefore treat *F. micrantha* as a species, at least pending any proof which may be offered to the contrary. Wootton's *acuminata* was intended to include all the *Fallugias* of this region, the differences in the flower not having been noticed; but one of Wootton's original specimens, in his herbarium, and also Torrey's figure which he cites pertain to the form here designated *acuminata*.

Potentilla thurberi Gray.—Hym.: *Bombus monardæ* Ckll. and Porter; *B. prunellæ* Ckll.; *Megachile fortis* Cress.; *Colletes gilensis* Ckll., ♂; *Vespa occidentalis* Cress. All taken on the Rio Ruidoso by C. H. T. Townsend. This *Potentilla* has dark red flowers.

Rosa neomexicana Ckll. = *fendleri* Wats. (part), not of *Crepin*. The insects here recorded were found on the flowers of this rose in Mesilla; the roses had been planted, and do not grow wild anywhere in the vicinity. On May 4, 1894, I collected the bees *Prosopis mesillæ* Ckll., ♂, *Agapostemon* sp., ♀, and *Diadasia apache* Cress. On April 27, 1898, Mr. C. M. Barber collected the bees *Apis mellifera* L., *Augochlora neglectula* Ckll., *Halictus armaticeps* Cress., *H. sisymbrii* Ckll., *H. oleosus* Ckll., *Prosopis mesillæ* Ckll., and *Ceratina nanula* Ckll., *Rosa neomexicana* grows wild in the Sacramento Mountains, N. M.; it is closely allied to *R. woodsii*.*

* *Rosa neomexicana* was collected in plenty by Prof. E. O. Wootton at Cloudcroft, N. M.; I have also seen it there. It differs from *sayi* by the leaflets cuneate at base, teeth simple or slightly compound; from *woodsii* by the much taller stature (often 6 ft. high or

Prunus (cultivated plum).—(1) Mesilla, 1897; *Andrena fracta* Casad and Ckll., ♂, March 24; *Halictus amicus* Ckll., ♀, April 4; *Bombus* sp., *Thecla halesus* and *Diabrotica 12-punctata* April 15th, the last mentioned eating the pollen. (2) Mesilla Park, April 13-14, 1898; Hym.: *Andrena prunorum* Ckll.; *A. fracta*, Csd. and Ckll., many; *A. monilicarnis* Ckll.; *A. salicinella* Ckll.; *Anthophora maculifrons* Cress.; *Halictus pruinosus* Rob; *Bombomelecta alfredi* Ckll.; *Parandrena andrenoides* (Cress.); *Halictus armaticeps* Cress.; *Prosopis mesillæ* Ckll., ♂; *Melecta maculata* Cress.; *Halictoides* sp.; *Colletes wootoni* Ckll.; Lep.: *Synchlæ lacinia* Geyer, many; Dipt.: *Bibio pallipes* Say, det. Coq., also *Eristalis*, *Volucella* and *Ceria*.

Prunus (wild plum).—Hym.: *Bombus ternarius* Say; *B. juxtus* Cress.; *Megachile pollicaris peregrinaria* Ckll., ♂; *Andrena sapellonis* Ckll.; *A. vicina* Smith; *Vespa maculata* L. All at Beulah May 30th (Wilmatte Porter).

LEGUMINOSÆ.

Prosopis glandulosa Torrey.—Hym.: *Prosopis mesillæ* Ckll., ♂ ♀; *P. asinina* Ckll. and Casad., ♂; *Perdita exclamans* Ckll.; *Ashmeadiella prosopidis* Ckll. All at Mesilla, May 7, 1897.

Parosela scoparia (Gray).—Hym.: *Megachile sidalceæ* Ckll., Mesilla, August 23, 1897.

Parosela formosa (Torrey).—Hym.: *Centris lanosa* Cress., ♂, several at Little Mtn., Mesilla Valley, May 1st (Ckll.).

Psaralea tenuiflora Pursh.—Hym.: *Cælioxys gilensis* Ckll., ♀, *Megachile exilis* Cress., ♀. Gallinas R. at La Cueva, August 6th (Ckll., W. Porter).

Petalostemon candidus (Willd.).—The following were all taken at the flowers at Las Vegas, 1899. Dipt.: *Physocephla ochreiceps* Bigot-det. Coq., July 21. Hym.: *Andrena argemonis* Ckll., ♀, July, August (W. Porter, Ckll.); *Anthophora cardui* Ckll., ♂, August 11th (W. Porter); *Anthidium perpictum* Ckll., ♂ ♀, August 11th (W. Porter); *A. porterae* Ckll., ♂, August 11th (W. Porter); *Megachile manifesta* Cress., ♀, August (W. Porter); *Bombus fervidus* Fabr.; *B. scutellaris* Cress.; *Cerceris venator* Cress., July 21st.

Medicago sativa L. (alfalfa).—The following were taken at Las Vegas, 1899: *Megachile cleomis* Ckll., ♀; *M. latimanus* Say, ♀; *Melissodes agilis aurigenia* Cress., ♂; *Prosopis mesillæ* Ckll., ♀; *Anthophora bomboides neomexicana* Ckll., ♂; *A. urbana alamosana* Ckll., ♂; *Apis mellifera ligustica* Spin.

more), and small solitary flowers; from *blanda* by the infrastipular spines normally in pairs, and the solitary flowers; from *aciculata* (Ckll. described as *blanda* var.) by similar characters. The flowers of *neomexicana* are sometimes two or three together, but then only one fruit seems to mature. The fruits are small, scarlet, oblong. Sepals entire, with more or less foliaceous tips. Stipules entire, but glandular-margined.

Melilotus alba Desv.—Hym.: *Philanthus frontalis* Cress., ♀. Dipt.: *Nemotelus unicolor* Loew, det. Coq. Both at Las Vegas, August 9th (Wilmatte Porter).

Trifolium repens L.—Hym.: *Melissodes pallidicincta* Ckll., ♀, Las Vegas, July 3rd (N. Stern).

Lupinus silgreavesii Wats.—Hym.: *Bombus nevadensis aztecus* Ckll.

Astragalus humistratus Gray.—Hym.: *Megachile fortis* Cress., Rio Ruidoso (Townsend).

Vicia sp. prob. new, near *pulchella* H. B. K. (Wooton's No. 288).—Hym.: *Megachile fortis* Cress.; *Melissodes ruidosensis* Ckll.; *Bembex spinolæ* Lep., ♀; *Colletes gilensis* Ckll., ♂; *Cælioxys gilensis* Ckll., ♂ ♀; *Bombus fervidus* Fab.; *B. sonarus* Say; *B. juxtus* Cress.; *B. ternarius* Say; *B. prunellæ* Ckll. All collected by C. H. T. Townsend on the Rio Ruidoso. Prof. Wooton considers this *Vicia* distinct from *V. pulchella*, and knows of no name that can be applied to it.

A New Ceratina from New Mexico.

By T. D. A. COCKERELL.

Ceratina neomexicana n. sp.

Female.—Length $7\frac{1}{2}$ mm.; dark green; occiput dark blue; mesothorax with a slight coppery tint at the sides of the middle; first three segments of abdomen dorsally rather olive green; clypeus with a broad-pyriform cream-colored patch; ends of tubercles also cream-colored or ivory-white; wings strongly suffused with reddish brown; nervures and stigma dark. Allied to *C. dupla* Say, but usually larger and easily distinguished by the more sparsely-punctured face, with a shining impunctate supraclypeal space, and similar spaces above the lateral pieces of the clypeus; the sides of the vertex very sparsely punctured; the mesothorax smooth and shining, with sparse punctures on the anterior third, and rather close punctures round the edges, but otherwise impunctate; cheeks with small and very sparse punctures, a broad band behind the eyes impunctate; punctures of middle of abdominal segments smaller and sparser than in *dupla*; flagellum black above, last six joints reddish brown beneath.

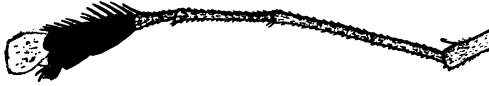
Hab.—Chicarico Cañon, near Raton, N. M., Aug. 25, 1900 (Ckll.); Santa Fé, N. M., July 10 (Boyle), July 7, at flowers of *Aquilegia* (Ckll.).

MRS. E. M. SWAINSON, 2131 Guildford Ave., Baltimore, Md., will collect in Jamaica, commencing about April 1st. She will be pleased to hear from anyone interested in Jamaica insects.

A New Species of *Dolichopus* from Texas.

By CHARLES T. BRUES.

The genus *Dolichopus* is very poorly represented in the Texas fauna. In the vicinity of Austin we have taken only two species, one of which is an undescribed form. The other,



Fore tarsus (♂) *Dolichopus sphaeristes*.

D. ramifer, is very common, and is frequently seen at considerable distances from any water, often upon the vegetation of the dry hill-sides. The new species is described below.

***Dolichopus sphaeristes* sp. nov.**

Bright green. Antennæ, except part of third joint, yellow. Femora yellow. Cilia of inferior orbit pale. Tegular cilia black. Fourth longitudinal vein not broken. Hind tibiæ and tarsi at base yellow. Fourth and fifth joints of male fore tarsi enlarged, black; the fifth bilobed and with a large snow-white empodium.

Male.—Length 6 mm.; of wing 5 mm. Bright coppery green, moderately shining. Face rather narrow, ochraceous, much lighter on lower fourth. Palpi light yellow. Antennæ yellow, except a black spot at insertion of arista and the infuscated tip of the third joint. Third joint short, oval, obtusely rounded at the tip. Arista black, about one and one-half times the length of the antennæ, distinctly pubescent. Vertex shining green. Post-ocular cilia, except three upper ones, pale yellow. Thorax slightly yellowish pollinose in front. Pleuræ darker and white pollinose. Coxæ pale yellow, except a black stain on middle pair externally. Anterior ones bare, except for a row of black hairs along the apical external edge. Middle ones sparsely black hairy anteriorly. Abdomen green at base and coppery posteriorly. Last segment and hypopygium black. Internal appendages of hypopygium pale ferruginous. Lamellæ gradually narrowed toward base and obliquely arcuate at apex; white, narrowly and sharply bordered with black on the apical half; strongly bristly at apical angle, elsewhere almost devoid of bristles: with a region of black punctures near anterior angle. Legs yellow, except last two joints of anterior tarsi, which are black; and four posterior tarsi, which are gradually infuscated beyond tip of first joint. Last two joints of anterior tarsi much enlarged and fringed with black hairs on anterior edge. The fifth slightly bilobed at apex, part of the joint forming a sort of appendage. Empodium very large, snow-white, almost as large as fifth joint. Posterior tibiæ greatly thickened, especially near base, as

stout as the femora. Each tibia has an elongate bare space on inner side on basal half. Wings hyaline, rather narrow at base. Costa distinctly thickened at tip of first vein. Fourth vein not sharply angulate. Incision at tip of fifth vein well marked.

Austin, Texas, May, 1900.

This species is readily recognized by the peculiar ornamentation of the male fore tarsus and the configuration of the posterior tibiae. The front tarsi approach most closely to *D. 6-articulatus* Lw. from which they differ by their very small appendage. It is a peculiar form.

A New *Callimorpha*.

BY H. D. MERRICK.

I wish to describe through the NEWS what appears to be a new variety of *Callimorpha lecontei*, for which I propose the name "*dyarii*" in remembrance of the many courtesies shown to me by Dr. Dyar during a recent visit to the National Museum.

In color, this fly is a uniform creamy yellow, with all the markings of *lecontei*. It appears with it together with an immaculate form similar to *vestalis*, but of the same yellow tint. I have taken this fly for three seasons, near New Brighton, Pa.

I HAVE lately received a note from a very intelligent and observing teacher, whom I asked to note the positions of the baggy and slender *Cecropia* cocoons in a region where they abound. She says that the baggy ones were high as well as low, "about even," while all the slender ones were low. She sent me between fifty and sixty after supplying some of the teachers, so she had a fair amount of material to observe. I have been testing these by weight, and so far I find that the heavier cocoons always gave ♀♀ and the lighter ones ♂♂. The slenderest cocoon was one of the heaviest and gave a ♀.

With my present supply of cocoons I have not failed to select the ♀ by weight, nor have I found any difficulty in selecting. I should not dare say, however, that this would always be the case and a sure test. If you try water on the two forms I think you will find that the baggy ones will be soaked more quickly than the firm ones, disposing of Mr. Roberts' theory.—CAROLINE G. SOULE, Brookline, Mass.

An Aquatic Psychodid.

By V. L. KELLOGG, Stanford University, California.

While "hunting" Blepharoceridæ last March in the streams of the Sierra Morena Mountains, a few miles west of Stanford University, my attention was attracted to some very small Blepharocerid-like larvæ and pupæ which prove to be immature stages of a new species of *Psychodid*. Baron Osten Sacken in referring to some similar aquatic *Psychodid* larvæ and pupæ discovered by Fritz Muller in Brazil twenty years ago, writes of the "extraordinary interest" which the study of these "very remarkable aquatic larvæ" possess. As these new California larvæ show all of the "remarkable structural" details exhibited by the Brazilian specimens they should possess a similar interest. They are certainly very curious and suggestive immature flies.

The family Psychodidæ, the interesting "moth flies," is unusually well represented on the Pacific Coast, and certain species are very common. Mr. Trevor Kincaid of the University of Washington has determined a dozen or more species on the coast of which 10 have been described from coast specimens. I have found certain species numerous about Stanford and along the seashore twenty miles west of here. I am acquainted with the immature stages of but one species, however, that one being a form recently described from my specimens by Kincaid under the name of *Pericoma californiensis*.*

In the paper of Miall and Walker† on the life history of *Pericoma canescens*, a paper which I have unfortunately not been able to see, there is, as I learn from an abstract of it, a condensed account of our present knowledge of the early stages of the Psychodidæ, and a list of fourteen papers containing this knowledge. The larva of *Pericoma canescens* is semi-aquatic; it breathes air from above the surface, but it can remain immersed "for a long time together." "The larvæ seem most at home in water just deep enough to cover the body." Fritz Muller's aquatic Psychodids which he found in Brazil and gave

* Kincaid, T.

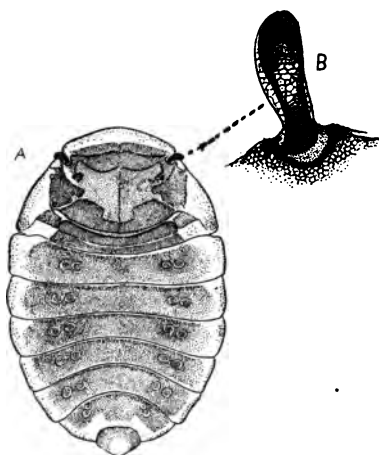
† Miall, L. C., and Walker, Norman, The Life History of *Pericoma canescens*, Trans. Ent. Soc. London, 1895.

accounts of in the Zool. Anzeiger, 1881, p. 499, the Entomologische Nachrichten, 1888, p. 273, and finally, with good figures in the Trans. Ent. Soc. London, 1895, part IV, p. 483, are remarkable in that the larvæ are provided with both spiracles and tracheal gills, for breathing air above or beneath the surface of the water, and are provided also with a series of median ventral suckers, reminding one of the condition of all *Blepharocerid* larvæ. The pupæ of these Brazilian Psychodids is remarkable for its great modification, being broad, flattened, provided with prothoracic breathing tubes, and clinging immovably by its ventral aspect to the surface of a rock wall, in all respects a structure, appearance and habit very like those shown by the pupæ of Blepharoceridæ. The pupa of Miall's semi-aquatic *Psychodid* is of the usual Tipulid-like type and the larva has no ventral suckers and has only spiracles, not tracheal gills.

My Californian aquatic *Psychodid* is of the type of Muller's Brazilian forms. The larvæ and especially pupæ are strongly like *Blepharocerid* larvæ and pupæ, in miniature, and have nearly the same habit. The larvæ which I found abundantly on March 1 and later dates in Los Gatos Creek, and other streams in the Sierra Morena Mountains, Santa Clara County, live on the stones of the stream bed not usually submerged but always at the very verge of the water, sometimes submerged, sometimes above the water surface, but always wetted by the current or spray. They are when full grown about 2.5 mm. long and about 1 mm. wide. They are, as Muller says of the Brazilian specimens, onisciform but are narrower and more elongate in shape than *Oniscus*. The shape and general appearance can be clearly understood by referring to Figure 1, in which both dorsal and ventral aspects are shown. They are not flat but rather thick, and the dorsal surface is quite firm. The ventral surface bears eight median segmentally arranged suckers by which the larva holds firmly (but not nearly so strongly as the larva of the Blepharoceridæ) to the surface on which it rests. There are no thoracic breathing tubes and openings, as described for *Pericoma* by Miall, but simply a pair of spiracles at the posterior tip of the abdomen, anal spiracles,

lying just between the strongly haired clavate processes shown in the figures. In the examination of nearly one hundred specimens (killed by various killing reagents and preserved in alcohol) I find no trace of any anal tracheal gills as described by Muller for the Brazilian larvæ. But Muller expressly states that these gills can be retracted (are always retracted in fact when the larva is above the water), it is possible that my larvæ are provided with them. If so they must be very small and delicate, for they have escaped my observation and numerous dissections.*

The pupæ (Fig. 2, A) are found in the same places with the

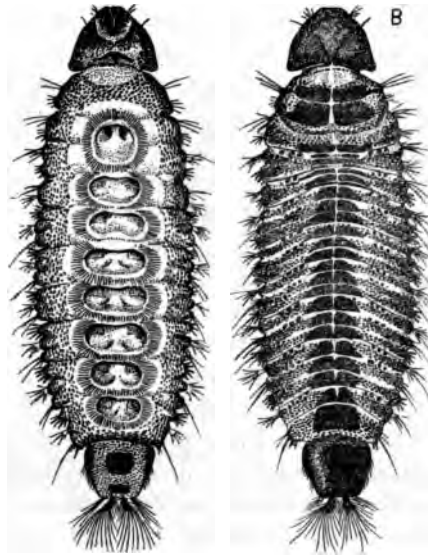


Pupa *Pericoma californica* Kincaid.
A, dorsal aspect; B, prothoracic breathing tube.

larvæ, although usually a little higher on the rocks and are thus less wetted. They are broadly shield-shaped, flat and adherent, quite of the general character of *Blepharocericid* pupæ, but less convex and of course much smaller. They are 2.5 mm. long and 2 mm. wide at the middle. They have a pair of short clavate prothoric breathing tubes. These organs are not composed of several lamellæ, as with the *Blepharocericidæ*, but are single, sub-cylindrical and have a fine mesh-work covering

* I shall have opportunity to see living larvæ again next March, this point can be settled then.

(Fig. 2, B). The dorsal wall of the pupa is firm, being fairly strongly chitinized. The flat ventral surface adherent to the rock is unchitinized, and the folded wings and legs lie uncovered, although of course perfectly protected by the dorsal wall. There are no sucking discs on the ventral surface of the pupa, but the adherence is, nevertheless, sufficient to prevent the



Pericoma californica Kincaid.
A, ventral aspect; B, dorsal aspect.

pupæ from being carried away by the occasional splashes of water which strike them. The pupæ were more plentiful than larvæ by April 5th, and adults were issuing at this time. Pupæ were found, however, at the same time, March 1st, that the larvæ were first noted.

I may add to this brief account of the immature stages of *Pericoma californica* that I found on July 25th in a small stream in the Rocky mountains of Larimer County, Colorado, two pupæ evidently *Psychodid* but different from the pupæ of the Californian *Pericoma*. The prothoracic breathing tubes of the Colorado form were long and tapering and flexible; the shape and general flat shield-shaped adherent character of the body was the same as in *Pericoma californica*.

***Lecanium caryæ* Fitch.**

By GEO. B. KING, Lawrence, Mass.

There seems to be considerable confusion about Fitch's *Lecanium caryæ*. This original description is "Fixed to the bark of the small limbs a large, very convex oval scale of a black color fading to chestnut-brown, in May, dusted over with a white powder. Length often .40 by .25 in width." The type specimens have apparently been destroyed, at least they cannot now be found. The confusion seems to have arisen from a species sent by Fitch to Signoret, who took it to be *L. caryæ*, and described it as having a six-jointed antennæ, with the third joint very long and the female scale 6 mm. long. It is quite evident that this could not be Fitch's *L. caryæ*, as his scale was 10 mm. long and $6\frac{1}{2}$ broad.

What I take to be *L. caryæ* is a species which I have found on pignut hickory, wild red cherry, and once on white oak; the same species has just recently been sent me by Dr. Fletcher, found on peach at Niagara, Ont. Some of these scales were of the same size as Fitch's, while others were somewhat larger. The following is a description of them: ♀ scale very large, $11\frac{1}{2}$ mm. long, $9\frac{1}{2}$ broad, $3\frac{1}{2}$ high; dark red-brown; soft, while on the limbs in May, and more or less covered with a white power; anal cleft $1\frac{1}{2}$ mm. long. Antennæ stout, distinctly seven jointed. The measurements are in micromillimeters. Antennal joints (1) 28, (2) 28, (3) 92, (4) 40, (5) 20, (6) 24, (7) 40. Width (1) 80, (2) 72, (3) 44, (4) 40, (5) 32, (6) 28, (7) 24. The number of hairs on the several joints seem to be variable and they generally point longitudinally. The first joint seems to have two; the second, one long one; the fifth, one very long; the sixth, two, short; and the seventh seems to have eight. Marginal spines 44 long and 8 broad at the base, points sharp, spaces between each two adjacent spines about 60. The derm become quite clear when boiled in caustic potash, and shows gland pits of two sizes, with the usual other markings found in the subgenus *Eulecanium*. This species should be easily recognized by its stout 7-jointed antennæ, and the very large size of the scale, being the largest species found. Habitat, North America.

There is not the slightest doubt but the above described species is Fitch's *L. caryæ*, 1856, found on *Carya alba*.

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U. S. Agr. Rpt., 1880, p. 364, *Chiloneurus albicornis* (a parasite). Mr. J. D. Putnam bred seven of the above parasites from *L. caryæ* in his collection at Davenport, Iowa.

Insect Life, vol. 3, 1890, p. 383. In the description of *L. pruinosum* by D. W. Coquillett, he says: "Among all the descriptions of the species of *Lecanium*, to which I have access, none agree so well with the present species as does Dr. Fitch's description of his *L. caryæ*; but Prof. Riley has compared specimens and finds *caryæ* to be much larger."

Fifth Rpt., U. S. Entom. Com., 1890, p. 298, is a copy of Fitch's description of *L. caryæ*.

Can. Ent., vol. 27, p. 254, 1895, Prof. Cockerell, in his description of *L. canadense*, refers to Signoret's description of *L. caryæ*, but not of Fitch, 1856.

Can. Ent., vol. 30, 1898, p. 293, Prof. Cockerell, in his description of *L. caryarum*, refers to Signoret's species and considers it to be very similar to if not identical with Fitch's *L. cynosbati*.

Can. Ent., vol. 31, 1899, p. 141. The present writer cites *L. caryæ* being found by him in Massachusetts.

The Industrialist, April, 1899, p. 234, Prof. Cockerell refers to *L. caryæ* in his descriptive notes on *L. ribis* Fitch.

Notes on Aleurodidae.

By H. O. WOODWORTH, Champaign, Ill.

The appearance last July of Bulletin No. 8, Technical Series, Div. of Ent., U. S. Dept. of Agric., by Prof. A. L. Quaintance, entitled: "Contributions Toward a Monograph of the American Aleurodidae," brought to the writer's attention this much neglected family.

In Illinois there were reported by that paper only three species upon as many hosts. Therefore the writer decided to use his spare time in the study of the local species and such others as he might collect elsewhere. As a result, in the last few months, specimens from about one hundred kinds of plants were collected, of which at least three-fifths are new to the monographic list. From some species of plants as many as five kinds of Aleurodids were found.

Host plants of *Aleurodes pergandei* Quaint.

The present paper will be devoted to the host plants of one—the prettiest of these little insects: *Aleurodes pergandei* Quaint. The pupal form alone will be considered.

The plants will be considered in the systematic botanic order of Gray.

RUTACEÆ.

NORTHERN PRICKLY ASH.

Xanthoxylum americanum.

Specimens found on under side of leaves, August 23, 1900, about one-half mile east of Urbana and noticed quite often north and east of Urbana until the last of September, when the writer went to Pekin for a month. They were always scarce, never more than three upon one leaf.

ROSACEÆ.

CULTIVATED PLUM.

Prunus sp.*

One specimen was found in Champaign, Ill., as early as August 13, 1900, and on September 12, 1900, several specimens were taken from two trees at the University grounds. They were not abundant.

CULTIVATED DWARF PLUMS.

Prunus sp.

Few collected September 12, 1900, from plant at the Experiment Station ground in Urbana.

FLOWERING ALMOND.

Prunus (Amygdalus) nana.

On September 20, 1900, after a few minutes' careful search, a few specimens were found in Mt. Hope Cemetery—south of Urbana.

PEACH.

Prunus (Amygdalus) persica.

From the 1st of August until the last of September specimens could be found upon nearly every peach tree about Champaign and Urbana, but apparently only upon the lower and more shaded leaves. They were scarce, never more than twelve being found upon a single tree.

* See p. 32 of Prof. A. L. Quaintance's paper for additional localities.

BLACKBERRY.

Rubus villosus.

Found first upon berry-bush $2\frac{1}{2}$ miles northeast of Urbana, September 5, 1900; next near Insectary, U. of I. grounds, Urbana, November 17, 1900, and later as follows: U. of I. forest, Urbana, November 26, 1900; December 17, 1900; January 18, 1901; woods north of Urbana, December 17th, but few specimens taken at a time. Of those collected in wood, December 17, 1900, two were upon upper surface of a curled leaf.

RED HAWS.

***Crataegus mollis* and *Crataegus* sps.**

On August 22, 1900, about $1\frac{3}{4}$ miles north of Urbana were found upon the lower leaves a large number of specimens. From then until the last of September some specimens were seen upon nearly every red haw plant. Some leaves had as many as fifteen upon them. They were especially abundant in dark places. At Pekin, Ill., October 11, 1900, some were found upon three leaves.

ENGLISH HAW.

Crataegus oxycantha.

On October 30, 1900, in a yard in the western part of Champaign, two specimens were found upon a leaf.

WILD-CRAB.

Pyrus coronaria.

About the 1st of September and throughout that month quite a number of specimens were taken from the lower leaves in crab thickets. They were not found upon isolated trees.

SAXIFRAGACEÆ.

Hydrangea* sp.

CAPRIFOLIACEÆ.

SNOW BALL.

Viburnum opulus.

Few leaves with specimens collected at Mt. Hope Cemetery, south of Urbana, on September 18-20, 1900.

* Not collected at yet upon this plant in Illinois.

BIGNONIACEÆ.

TRUMPET CREEPER.

Bignonia radicans.

On August 16, 1900, at the University grounds were collected several specimens, and from then until the last of September occasionally noted in same locality. On September 20, 1900, some were found in Champaign, Ill.

OLEACEÆ.

FRINGE TREE.

Chionanthus virginica.

On August 13 and 30, 1900, some specimens were taken in the western part of Champaign. They were noted at intervals of about two weeks between the above dates.

In conclusion, the Illinois localities are added to those of Quaintance (Wash., D. C., Ga., Va.).

The host list for Illinois includes all but one species (*Hydrangea*), besides adding several to those found elsewhere. Trees, shrubs and a vine are among the hosts, representing six botanical families and thirteen species. Each family, except Rosaceæ, is represented by a single species. This seems to show that *Aleurodes pergandei* prefers the plants of the rose family.

From the above paper, one may infer that in this locality this year it preferred the red haws.

What seemed strange to the writer was that not a single specimen of *Aleurodes pergandei* was among the number of Alourodids on leaves of red haw, crab, etc., collected in Milwaukee, Wis., the last week of August, 1900, from which the writer concludes they are very scarce if present in the vicinity of Milwaukee. Further investigation alone can settle that point.

Again, although they are usually found upon the lower surface of the leaves, yet they were, on December 17, 1900, found upon the upper surface.

This species has been collected on the 20th of May in Georgia, and seen almost continually from the 1st of August to the last of September in Illinois; afterward at intervals to January 4, 1901. This leads the writer to think that it may be possible to collect this species throughout the year in the form of pupa.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—Ed.

PHILADELPHIA, PA., FEBRUARY, 1901.

It is interesting to observe the comparatively slow growth of science along some lines and to see how most important facts are overlooked until attention is attracted to them by some great event that appeals to many minds at once and causes a great awakening. The large mortality from typhoid fever during the late Spanish-American war has created a widespread interest in the subject of the transmission of disease by insects, and many important papers have recently appeared bearing on this subject. At the present time the importance of these studies and observations is fully recognized, and there is absolutely no doubt that insects play a most important part as ætological factors in disease. To show the comparatively slow growth of the subject, it may be mentioned that in 1807 Dr. John Crawford, in the "Baltimore Observer," published a paper on the "Mosquitul Origin of Malarial Disease." The "New Orleans Medical and Surgical Journal," vol. iv, pp. 563-601, 1848, contains an article by Dr. Josiah Nott, in which he mentioned that the "mosquito of the lowlands" was the cause of malaria. In 1871, Dr. Joseph Leidy stated his belief that hospital gangrene was disseminated by house-flies (Proc. Acad. Nat. Sci. Phila., 23, 297). Dr. A. F. A. King deserves great credit for his brilliant article published in the "Popular

Science Monthly," 23, 644, 1883, entitled "Mosquitoes and Malaria." The later literature should be known to all interested in this subject. It is amusing to find some recent writers in medical journals claiming priority for observations which were in reality made before they were born.

Entomological Literature.

COMPILED BY P. P. CALVERT.

Under the above head it is intended to mention papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology will not be noted. Contributions to the anatomy, physiology and embryology of insects, however, relating to American or exotic species, will be recorded. The numbers in **HEAVY-FACED TYPE** refer to the journals, as numbered in the following list, in which the papers are published; * denotes that the paper in question contains descriptions of new North American forms. Titles of all articles in foreign languages are translated into English; usually such articles are written in the same language as the title of the journal containing them, but when such articles are in other languages than English, French, German or Italian, this fact is indicated in brackets.

4. The Canadian Entomologist, London, Ont., Jan., '01.—**5.** Psyche, Cambridge, Mass., Jan., '01.—**6.** Journal of the New York Entomological Society, Dec., '00.—**9.** The Entomologist, London, Jan., '01.—**12.** Comptes Rendus. L'Academie des Sciences, Paris, '00.—**21.** The Entomologist's Record, London, Dec. 15, '00.—**24.** Berliner Entomologische Zeitschrift, xlv, 1-2, Aug. 3-4, Dec., '00.—**32.** Bulletin du Muséum d'Histoire Naturelle, Paris, '00.—**36.** Transactions, Entomological Society of London, '00, pt. iv, Dec. 24.—**37.** Le Naturaliste Canadien, Chicoutimi, Quebec, Dec. 30, '00.—**51.** Novitates Zoologicae, vii, 3, Tring, England, Dec., '00.—**74.** Naturwissenschaftliche Wochenschrift, Berlin, '00.—**85.** Bulletin, Société des Sciences Naturelles de l'Ouest de la France, x, 3, Nantes, Sept. 30, '00.—**86a.** Annales, Société Entomologique de France, '99, Trimestres 1, July, '99; 2 Nov., '99; 3 Feb., '00; 4 June, '00; all rec'd. Jan., '01.—**86b.** Bulletin of the same for 1899; rec'd. Jan., '01.—**87.** Revue Scientifique, Paris, '00.—**89.** Zoologische Jahrbücher, Abtheilung für Systematik, etc., xiv, 2, Jena, Dec. 4, '00.—**140.** Proceedings, Washington Academy of Sciences, ii. Papers from the Harriman Alaska Expedition, Dec. 20, '00, unless otherwise dated.

THE GENERAL SUBJECT.—**Beutenmüller, W.** Entomological writings of the late Rev. George D. Hulst, **6.**—**Brown, A. W.** [Arachnida, Myriopoda, Prototracheata] **Sharp, D.** [Insects]. The Zoological Record, xxxvi, Records of Zoological literature relating chiefly to the year 1899. London, '00.—**Coupin, H.** The sentiment of death in animals, **87**, Dec. 22.—**Gadeau de Kerville, H.** Observations on the utility of radiography in entomological works, **86b**, 4.—**Handlirsch, A.** On so-called "local faunas" and especially on Gabriel

Strobl's 'Styrian Hemiptera,' Verhandlungen, zoologisch-botanischen Gesellschaft in Wien, 1, 9, Dec. 7, '00.—**Marshall, G. A. K.** Conscious protective resemblance. Remarks on this paper by **Poulton, E. B.** The Zoologist, London, Dec. 15, '00.—**Redikorzew, W.** Researches on the structure of the ocelli of insects, figs., 2 pls., Zeitschrift für wissenschaftliche Zoologie, lxxviii, 4, Leipsic, Dec. 4, '00.—**Stichel H. et al.** [Discussions on mimicry in the Proceedings of the Berlin Society], 24, 3-4.—**de Varigny, H.** Animal chemists, 87, Dec. 29.—**Weeks, A. C.** In memoriam: Rev. Dr. George D. Hulst, 6.

ECONOMIC ENTOMOLOGY.—v. **Aigner-Abafi, L.** The destructiveness of *Acherontia atropos*, Rovartani Lapok, Budapest, Nov., '00.—**Anon.** Yellow fever and mosquitoes, Science, New York, Dec. 28, '00.—**Bureau, L.** *Lyctus canaliculatus* Fabr. and its ravages in parks and other open woods, figs., 85.—**Cartaz, A.** Mosquitoes and paludism, La Nature, Paris, Dec. 8, '00.—**Celli, A.** The new prophylaxis of malaria in Latium, figs., Centralblatt für Bakteriologie, Jena, Dec. 8, '00.—**Cockerell, T. D. A.** Observations on insects, figs., Bulletin 35, New Mexico College of Agric. and Mechanic Arts, Mesilla, N. M., Oct., '00.—**Hopkins, A. D.** The periodical cicada or seventeen-year locust in West Virginia, a revision of Bulletin 50, etc., figs., maps., 3 pls. Bulletin 68, West Virginia Agric. Exper. Station, Morgantown, W. Va., Oct., '00; Report on examination of wheat stubble from different sections of the State: supplement to Bulletin 67, 'The Hessian fly in West Virginia.' The Joint-worm in wheat in the northern Panhandle and northern borders of the State, 1 pl., Bulletin 69, id.—**Howard, L. O.** A contribution to the study of the insect fauna of human excrement with especial reference to the spread of typhoid fever by flies, figs., 2 pls., 140, ii, Dec. 28, '00; Flies and typhoid fever, Popular Science Monthly, New York, Jan., '01.—**Koch, B.** Summary of the results of the malaria expedition, 74, Dec. 30.—**Kropotkin, P.** Recent science: insects and malaria, The Nineteenth Century, Lond., Dec., '00.—**Lounsbury, C. P.** Report of the Government Entomologist for the year 1899, 4 pls., Cape of Good Hope Dep't. of Agriculture. Cape Town, '00.—**Mer, E.** Various means to preserve bark and wood against the attacks of insects, Bulletin, Société Nationale de Agriculture de France, 1900, No. 11, Paris.—**Pillians, E., Mayer, C.** Reports of the Agricultural Assistants at Cape Town and Stellenbosch for the year 1899. Cape of Good Hope Dep't. of Agriculture, Cape Town, '00.—**Reh, L.** Experiments on the ability of the Diaspinæ to resist external influences: Biologisches Centralblatt, Erlangen, Dec. 15, '00.—**Sarruf, N. Y.** Malaria and mosquitoes, Nature, London, Dec. 20, '00.—**Smith, J. B.** The angoumis grain moth, figs., Bulletin 147, New Jersey Agric. Exper. Stations, New Brunswick, N. J., Dec. 10, '00.—**Stephens, W. W., Christophers, S. R., Daniels, C. W.** Reports to the Malarial Committee, Royal Society [from West and East Africa.] 3rd Series, London, Dec. 31, '00.—**Verhoeff, C. W.** A noteworthy enemy [*Chrysopa* larvæ] of the "Blutlaus," 24, 3 4.—

Wilcox, E. V. Abstract of recent publications, Experiment Station Record, xii, 3, 4, Washington, '00.

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PROTOTRACHEATA.—**Bouvier, E. L.** Contributions to the history of the American *Peripatus*, 6 pls., 86a, 3.

MYRIOPODA.—**Behal and Phisalix.** Quinine, the active principle of the venom of *Julus terrestris*, 12, Dec. 10.—**Jourdain, S.** The venom of *Scolopendra*, 12, Dec. 10.—**Phisalix, C.** A volatile venom, cutaneous secretion of *Julus terrestris*, 12, Dec. 3.

THYSANURA.—**Skorikow, A.** A new species of *Japyx* (Thysanura) from eastern Bokhara, Annuaire, Musee Zoologique de l'Academie Imperiale des Sciences de St. Petersburg, v, 3, '00.

ORTHOPTERA.—**Bordas, L.** Contribution to the study of the subintestinal sympathetic or stomatogastric nervous system of Orthoptera, 2 pls., Bulletin Scientifique de la France et de la Belgique, xxxiii, Paris, Oct. 10, '00.—**Caudell, A. N.** Orthoptera, 140.—**Künckel d'Herculais, J.** The large migratory Acridians, of the Old and New Worlds, of the genus *Schistocerca*, and their changes of coloration according to age and to the seasons; physiological role of the pigments, 12, Dec. 3.—**Rehn, J. A. G.** The generic names *Vates* and *Theoclytes*, 4.—**Scudder, S. H.** A tropical type of Acridian new to the United States,* 6; *Cyphoderris monstrosa*, 4.—**Therese**, Princess of Bavaria, Insects collected on a journey to South America (cont.); the new Orthoptera described by **Brunner**, the new Odonata by **de Selys-Longchamps** and **Brauer**, 24, 3-4.—**Walker, E. M.** Notes on some Ontario Acridiidae, iv, 4.

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and *Promethea* moths, 1 col. pl., id., Dec., '00.—**Beutenmüller, W.** Two new *Sesiidæ*,* **6**.—**Busck, A.** A new Canadian *Tineid*,* **4**; New American *Tineina*,* **6**.—**Chapman, T. A.** The egg of *Cossus orc* Streck., with some notes on the egg of *C. ligniperda*, 21.—**Dyar, H. G.** *Lepidoptera** [containing descriptions by **J. B. Smith, R. Otte-lengui, G. D. Hulst, W. Beutenmüller, C. H. Fernald**], **140**.—**Dyar, H. G.** Life histories of North American *Geometridæ*, xviii, **5**.—**French, G. H.** Revision of the genus *Catocala*, **4**.—**Grose-Smith, H.** *Rhopalocera Exotica*. Part 54. London: Gurney & Jackson. Oct., 1900. 3 col. pls.—**Hudson, G. V.** New Zealand Moths and Butterflies (*Macro-Lepidoptera*). With 13 plates [11 colored]. London: West, Newman & Co., 1896. 4to.—**Hulst, G. D.** New species of *Lepidoptera*,* **6**.—**de Joannis, J.** Note on a *Phycide* living as a parasite in a nest of larvæ from Mayomba (Congo), **32, 6**.—**Lathy, P. I.** The genus of *Dircenna Barrettii* Dannatt, **9**.—**Lyman, H. H.** Life-history of *Xylina Bethunei* G. and R., **4**.—**Merrifield, F., Chapman, T. A.** Markings of pupal and imaginal wings, **36**, Proceedings.—**Moore, F.** *Lepidoptera Indica*. Parts xlv, xlvii. London: Lovell Reeve & Co., 1900 [Pp. 193-208, 209-224 of vol. iv, pls. 357-364, 365-372. *Nymphalinae*, group *Argynnina*].—**Noel, P.** The preservation of larvæ in collections, *Le Naturaliste*, Paris, Dec. 1, '00.—**Riffarth, H.** The genus *Heliconius* Latr. newly revised, with description of new forms,* **24, 3-4**.—**Rothschild, W., and Jordan, K.** A monograph of *Charaxes* and the allied prionopterous genera, 5 pls., **51**.—**Schaus, W.** New species of *Heterocera* from tropical America,* **6**.—**Standfuss, M.** Synopsis of experiments in hybridization and temperature made with *Lepidoptera* up to the end of 1898 (cont.), **9**.—**Stichel, H.** Noteworthy varieties and aberrations of butterflies, 1 pl.; Variation and gynandromorphism in *Chlorippe vacuna* God., **24, 1-2**.—**Tutt, J. W.** On the generic name *Micropterix* (*Micropteryx*) Hub., **21**.

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Doings of Societies.

The twelfth regular meeting of the Harris Club was held at 36 Court Street, on Friday evening, December 21, 1900, Mr. Newcomb presiding. A most interesting paper on hybrid Lepidoptera, contributed by Miss Emily L. Morton, of Newburg, N. Y., was read by the Secretary. Specimens of hybrids were shown by Messrs. Low, Field and Newcomb, and the latter spoke at some length on the subject of hybridity. It was voted to resume discussion of this subject at the next meeting.

Some interesting notes sent in by members of the Montreal branch of the Entomological Society of Ontario were then read.

The meeting closed with the unanimous election of Miss Morton to honorary membership W. L. W. FIELD, *Secretary*.

At the December meeting of the Feldman Collecting Social, held at the residence of Mr H. W. Wenzel, 1523 South 13th Street, fifteen persons were present.

Mr. P. Laurent referred to a former communication on damage to cabbages by the supposed larvæ of *Pieris rapæ*, but more recent observations had shown that possibly the damage was due to larvæ of *Plusia brassicæ*.

Mr. Schwarz spoke of recent investigations on the *Blastophaga* in connection with the fig industry of California. A considerable crop of Smyrna figs had been produced and the experiments were in every way successful. The *Blastophaga* cannot develop in flowers of the female fig, but live on those of the male tree. The fertilization of the fig was described: "The insects emerge from the male figs in March, and deposit their eggs in a new generation of male flowers which shortly have an abundance of pollen which covers the insects. At this period the female flowers are ready for reception of pollen which is carried therein by the insects in their efforts at oviposition." Photographs of the operation were shown.

Owing to climatic differences at Fresno and Niles, four generations of the insect occurred at the former place and but two at the latter in one season. The insect was introduced from Europe in 1899 by the U. S. Dep. Agric., prior to which time the California tree owners apparently did not know that it was necessary for the fertilization of the figs.

Prof. Smith spoke of the great value accruing from the introduction of the fig insect into California, and referred to it as an example of the good work being done by economic entomologists in this country.

Mr. Schwarz stated that the Smyrna figs could not be dried in the Eastern and Southern States, and only portions of California are propitious for its cultivation. The figs must dry on the trees and are harvested when fallen to the ground. He believed the Colorado desert to be an ideal country for the cultivation of the tree.

Mr. Ashmead stated that the fig insect although known for centuries was not described until 1820. Their position in the Chalcididæ had been demonstrated by Westwood. He had now nearly all the described species and many new ones in his collection. The structure of the insects was dwelt on, they are remarkable for having a saw-like appendage to the palpi or mandibles except in two genera. The sexes had not been correlated until recently owing to differences in structure. Figures of both sexes were shown. The Torymidæ were formerly classed with these insects but have since been shown to be distinct, being either true parasites or inquilines.

In reply to Dr. Skinner, Mr. Ashmead said there are known about thirteen genera and forty or fifty species of fig insects, but many are yet undescribed.

The subject was further discussed by Messrs. Smith, Skinner, Schwarz, Ashmead.

Dr. Skinner asked whether this fertilization was a case of design in nature or one of natural selection.

Prof. Smith believed it a case of natural selection. He admitted apparent design in nature but believed it due to the adaptation of various forms of life to one another.

The advisability of naming forms which intergrade for so-called convenience, was discussed by Messrs. Ashmead, Skinner, Johnson and Schwarz.

Dr. Skinner referred to a specimen of Coleopterous larva six inches long recently received from Pecos, Texas. Mr. Schwarz suggested that it belonged to a longicorn, *Mallodon*.

Mr. Schwarz exhibited a specimen of the European *Platynus albipes* from northeastern Maine, a species new to the U. S.

fauna. He predicted that other interesting forms would be reported from the same region. WILLIAM J. FOX, *Secretary*.

A meeting of the Entomological Section of the Academy of Natural Sciences of Philadelphia was held December 27, 1900, Mr. Philip Laurent, Director, presiding. Fifteen persons were present. The following officers were elected to serve for the coming year: Director, Philip Laurent; Vice-Director, H. W. Wenzel; Treasurer, E. T. Cresson; Recorder, Henry Skinner, M.D.; Conservator, Henry Skinner, M.D.; Secretary, C. W. Johnson.
HENRY SKINNER, *Recorder*.

A meeting of the American Entomological Society was held December 27, 1900, Dr. P. P. Calvert, President, in the chair. Fifteen persons were present. The various reports of the officers were read. The President announced the death of Baron Michel Edmond de Selys-Longchamps, a Correspondent of the Society, at Liège, Belgium, in his 87th year, and Dr. Otto Staudinger of Blasewitz, Dresden, a Correspondent, who died October 13th at Lucerne. Mr. H. W. Wenzel presented specimens of *Aglenus brunneus*. Mr. C. Schaeffer presented a species of *Panurgus*, new to the collection. The following were elected to serve as officers for the coming year: President, P. P. Calvert, Ph. D.; Vice-President, H. W. Wenzel; Treasurer, E. T. Cresson; Recording Secretary, Henry Skinner, M.D.; Corresponding Secretary, C. W. Johnson; Curator, Henry Skinner, M.D.; Librarian, Wm. J. Fox.

HENRY SKINNER, *Secretary*.

Eleven members attended the regular meeting of the Newark Entomological Society on January 13th, President Buchholz in the chair. Visitors Messrs. Holterman and Bechmann.

Mr. Buchholz exhibited specimens of *Alypia 8-maculata* and *A. langtonii*, which he had raised from the same brood of larvæ. Those which emerged the same season were "*langtonii*," whereas those which hibernated were all "*8-maculata*." Prof. Smith said he had obtained only *A. 8-maculata* from a mid-summer brood, and that in some localities "*langtonii*" was the only local form. Mr. Ronke exhibited the type of *Papilio turnus ab-fletcheri*, also a beautiful specimen of *Chrysopehanus*

hypopheleas, which has the ordinary coppery hue of the fore wings almost entirely supplanted by a silvery lustre.

Prof. Smith described an aberration which he had seen. It was reared amongst a large brood of larvæ of *Papilio philenor*, and corresponded closely in markings to *Papilio asterias ab-calverleyi*. He also suggested that a very interesting and instructive experiment might be made by rearing a large number of larvæ of *Vanessa antiopa*, or other common species. He thought that oddities might be produced by placing the pupæ in cold storage for different lengths of time, and, by carefully noting the results from each lot differently treated, some very desirable knowledge, and, incidentally, some very odd imagoes would probably reward the experimenter for his work. Also by occasionally shaking up some of the pupæ, otherwise normally treated, still other odd features might be produced.

Mr. Herpers exhibited a very interesting sphingid, caught by him in Florida, which no one present would venture to identify with certainty. Prof. Smith thought it might be a hybrid *Smerinthus geminatus* = *myops*. Messrs. Holterman and Angelman each brought a small but interesting collection of Noctuids. Mr. Bischoff reported the capture of *Pselaphus longiclava* and *Meloe americana*, hibernating under stones, at Irvington, N. J., December 30th.

Prof. Smith spoke of some hickory twigs sent to him from two localities in New Jersey. They had been girdled by *Oncideres cingulatus*. No trace of deposition of eggs, nor evidence of larvæ could be observed, but he had seen evidence of the presence of *Cicada 17-decem* on some of them. Further discussed by Messrs. Stortz, Bischoff and Angelman.

Mr. Angelman stated that *Zeuzera pyrina* is not as abundant in Newark as formerly. Prof. Smith reported its appearance in New Brunswick, N. J., this year.

Mr. Wm. Holterman was proposed by Mr. Angelman and unanimously elected a member of the Society. An invitation was cordially accepted by the Society from Mr. Buchholz to hold a special meeting at his house on Sunday, February 3d. Subjects of special interest to individual members were made the order of the day for the next regular meeting.

S. T. KEMP, *Secretary*.

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On *Gomphus fraternus*, *externus* and *crassus* (Order Odonata).

By PHILIP P. CALVERT.

Some time ago, when some western Gomphi were submitted to me for identification, I had considerable difficulty in determining them. Correspondence with Messrs. Williamson, Hine, Adams and Weith ensued, resulting in generous offers on their part to place their material related to *G. fraternus* Say, at my disposition for study. I thankfully accepted, since the chief obstacle, in *my* way at least, was lack of material. As the outcome of careful comparative study, I have the following notes to present, which, I am led to think, may be of use to others beside myself. Of the three closely related species, whose names stand at the head of this article, I have examined the following individuals:

G. fraternus Say, 19 ♂ 17 ♀; *G. externus* Selys, 4 ♂ 6 ♀;
G. crassus Hagen, 20 ♂ 3 ♀.

The differences between these three species are as follows; they are arranged, approximately, in order from the least variable to the more variable.

	<i>Fraternus.</i>	<i>Externus.</i>	<i>Crassus.</i>
1. ♂ Superior appendages viewed from above	more divergent, the interval between their tips greater than the length of one appendage.	less divergent, the interval between their tips about equal to the length of one appendage.	more divergent, the interval between their tips greater than the length of one appendage.
2. " "	inner edge of each appendage distinctly concave, outer side distinctly convex.	inner and outer edges of each appendage almost straight (fig. 17).	inner edge of each appendage slightly concave, outer edge angulate, forming two unequal limbs meeting at an obtuse angle at $\frac{2}{3}$ the length of the appendage (fig. 18).
3. ♂ Superior appendages, profile view, upper edge	distinctly convex (fig. 16).	almost straight (fig. 14).	distinctly convex (fig. 15).
4. Lower edge tapering to apex in its	apical third, a small tubercle on the lower edge <i>where the tapering begins</i> , at which point the appendage is hardly thicker than elsewhere in its postbasal portion (fig. 16).	apical half, a small tubercle (<i>a</i> , fig. 14) on the lower edge <i>immediately before the extreme tip</i> , the appendage distinctly thicker where the lower edge begins to taper than at any other point in its postbasal portion. (like <i>fraternus</i>), (fig. 12).	apical sixth, a small tubercle (<i>a</i> , fig. 15) on the lower edge <i>where the tapering begins</i> , at which point the appendage is not as thick as in the proximal portion.
5. ♂ Sup. apps. viewed obliquely from above at 45° with the horizontal plane	showing no tubercle on the basal side of the one mentioned above.		showing an obtuse tubercle* (<i>b</i> , fig. 13) on the external surface, to the basal side of the tubercle <i>a</i> above mentioned, from which it is separated by a distinct concave edge whose length is $\frac{1}{2}$ of the length of the appendage.

* This tubercle is the termination of a carina extending along the outer surface of the appendage almost from the base (compare fig. 15), and is the cause of the angulation of the outer edge of the superior appendage seen in dorsal view as shown also in fig. 18. The carina exists in *fraternus* and *externus*, but is less marked and does not end in a tubercle.

	<i>Fralernus.</i>	<i>Externus.</i>	<i>Crassus.</i>
6. ♂ Branches of the inferior appendage	slightly more divergent than the superiors by a distance on each side approximately equal to the width of the branch at its apex.	much more divergent than the superiors by a distance on each side approximately equal to three times the width of the branch at its apex (fig. 17).	very slightly more divergent than the superiors by a distance on each side less than the width of a branch at its apex (fig. 18).
7. ♂ Undivided basal part of inf. app. when viewed from below	with an almost straight edge between the two branches, this edge twice as long as either branch.	with an almost straight edge between the two branches, this edge four times as long as either branch (fig. 17).	forming part of an almost semi circular curve extending from the tip of one branch to the tip of the other (fig. 18).
8. ♀ The two branches of the vulvar lamina	contiguous in their basal half, curved away from each other in the apical half so that the lateral margins of the two tips diverge at 60-90° (fig. 3).	contiguous in their basal two-thirds, lateral margins of the two tips almost parallel (fig. 2).	not contiguous, lateral margins of the two tips divergent at 60° (fig. 1).
9. ♀ Third femora	with an external (anterior) yellow stripe on the basal three-fifths.	no external yellow stripe.	with an external yellow stripe.
10. ♂ ♀ Dark stripe on the first lateral thoracic suture	widely interrupted.	not interrupted.	interrupted.
11. ♀ Vertex	with a spine behind each lateral ocellus.	with a yellowish spine (arising from either end of the transverse ridge) behind each lateral ocellus (<i>i. e.</i> , not on the shortest line between the ocellus and the eye) (fig. 4).	with a brown spine arising a short distance away from the transverse ridge, so as to lie between each lateral ocellus and the eye (<i>i. e.</i> , on the shortest line between these two parts), (fig. 5).
12. ♂ ♀ Superior surface of the tibiae	black.	black, with a pale yellow stripe.	black.

Pausing now to discuss these differences,

I have not found any variations in the statements for characters numbered 1 to 5; this, of course, is merely another way of stating that I have taken the superior appendages as the chief specific characters, a course which I believe is fully justified by the material studied.

For No. 6, one male *fraternus*, Ind., had the divergence greater, although not as great as in *externus*, thus representing a variation of 5%, while two males *crassus*, Ohio, had the divergence no greater than that of the superiors (10%).

No. 7: the edge but very slightly longer than either branch 1 ♂ *fraternus*, Ark. (5%).

No. 8: in 1 ♀ *fraternus*, Ark., not quite contiguous (6%); 10 ♀♀ *fraternus* have the angle of divergence of the tips 90°, 7 ♀♀, mostly Ind., about 60°; for *externus* 1 ♀, Ill.?, is distinctly like *fraternus* with the angle of divergence 90°, 1 ♀* has the tips slightly divergent at about 60°.

No. 9. *fraternus*: absent 1 ♀, Ark., only a trace present 1 ♀, Ohio, extends to basal three-fourths 1 ♀, Ill.; well developed in 1 ♀ *externus*.*

No. 10: not interrupted in 5 *fraternus* (3 ♂ Ohio, Ind., Ill., 1 ♂ 1 ♀, Ark.) (13%), interrupted in 1 ♀ *externus**, barely interrupted 1 ♂ *crassus*, Ohio.

No. 11. *Fraternus*: 1 ♀ Ind., 1 ♀ Ark. spines absent, 1 ♀ Ind. spine absent on right side, rudimentary on left (total 17½%); marked difference in length of right and left spines 1 ♀ Ohio; spines black in 8 ♀, yellow in 2 ♀ Ill.

No. 12: a yellow stripe or line in 7 *fraternus* (18%), viz.: on the basal third of 1st and 2nd, basal fourth of 3rd tibiae, 3 ♂, Ill., Ind.; on the basal fifth of 3rd tibiae only 2 ♂ Ill., 1 ♀ Ohio; on basal half of all tibiae, 1 ♂ Ill. In *externus* this stripe may be almost as long as the tibiae, 3 ♀ Ill.; or on the basal two-thirds of the 1st, basal half of 2nd and 3rd, 1 ♂ 1 ♀ Ill., 1 ♀ Tex.; or on the basal half of the 1st tibiae, basal third of 2nd and 3rd, 3 ♂ Ill.; or on the basal half of 3rd tibiae only, 1 ♀.*

The differences between these three species which have thus far been considered are subject at the most to a variation of 20 per cent. and can, therefore, be considered specific, although to varying degrees. I have also compared these three species as regards a number of other structural and colorational differences

* This female, which I have included in *externus* because it agrees in characters Nos. 11 and 12, occupies quite an intermediate position since it has character 8 like both *externus* and *fraternus*, 9 as in *fraternus* and 10 as in *crassus*. It was marked as having been taken in copula with a ♂ which I unhesitatingly name *fraternus*; the locality is probably Illinois, the date June 29, 1895. I think it quite likely that this female may be a hybrid.

in which, however, the variability is much greater. These also are arranged, approximately, in the order of from less to greater variability.

a. Differences in which the variation is less than 50 per cent. in any one of the three species.

13. ♂. *Yellow basal mid-dorsal spot on the seventh abdominal segment*: one-half as long as the segment in 13 *fraternus* (two-fifths 1 ♂, three-fifths 2 ♂, two-thirds 2 ♂, three-fourths 1 ♂ = 31%); three-fourths as long as the segment in *externus*; one-half as long as the segment in 18 *crassus* (two-fifths 1 ♂, continued as a narrow line to apex 1 ♂ = 10%).

14. ♀. *Inferior surface of the second femora*: blackish with a pale green stripe in 11 *fraternus* (no stripe 6 ♀ = 34%); black or dark brown in 5 *externus* (pale green 1 ♀ = 16⅓%); pale green in 3 *crassus*.

15. ♂ ♀. *Tenth abdominal segment*: with no mid-dorsal yellow in 21 *fraternus* (trace of a spot 2 ♂ 2 ♀, a very small spot 1 ♂ 8 ♀, a large spot 1 ♂ 1 ♀, total 39%); with a mid-dorsal yellow spot almost as long as the segment in 9 *externus* (half as long 1 ♀ = 10%); with a mid-dorsal yellow line (20 ♂) or rounded spot (3 ♀) in *crassus*.

16. ♂. *Seventh abdominal segment*: with no apical lateral yellow spot in 10½ *fraternus* (present in 8½ ♂ = 44%); the same present in 10 *externus*; the same present, but very small in 18½ *crassus* (absent in 1½ = 7½%).

b. Differences in which the variation is 50 per cent. or more in one or more of the three species.

17. ♂ ♀. *Ninth abdominal segment* with no mid-dorsal yellow spot or band in 20 *fraternus* (with an extremely small isolated basal yellow spot 1 ♂ 2 ♀, a small spot in basal sixth 1 ♂ 1 ♀, an ill-defined streak in basal half 1 ♂ 6 ♀, an ill-defined cloud in middle two-fourths 2 ♂, an ill-defined stripe nearly as long as the segment 1 ♀, a distinct band as long as the segment 1 ♂, total 42%). With a mid-dorsal yellow band as long as the segment and as wide as the spot on 8 in 5 *externus* (four-fifths as long as the segment, not reaching the base in 1 ♂ 1 ♀, reaching neither base nor apex 2 ♀, one-half as long as the segment 1 ♀, total 50%). With a mid-dorsal spot as long as the segment in 12 *crassus* (four-fifths as long 6 ♂ 1 ♀, three-fourths as long 1 ♂, two-thirds as long 3 ♂—total 44% in which, moreover, the spot does not reach either base or apex).

18. ♀. *Hind margin of the occiput* with three successive convexities in its middle and two lateral thirds, the middle convexity angular but not sharply so, in 8 *fraternus* (Fig. 8) (these three convexities similar to each other in 3 ♀ Ill., Fig. 9; the median convexity replaced by a more or less pointed tubercle in 5 ♀ Ohio, Ind., Figs. 6, 7; no median convexity but a concavity instead 1 ♀ Ark.—total 53%). Very variable in *externus*; 2 ♀ Ill.,

Neb., have it almost straight in either lateral third, convex in the middle third; in 1 ♀ similar, but the middle convexity with a slight but distinct median emargination, Fig. 10; forming three slight convexities in its three-thirds respectively 1 ♀; slightly convex as a whole but with a distinct median notch 1 ♀ Tex.; almost straight 1 ♀. In 3 ♀ *crassus*, slightly convex in either lateral fourth, concave in the middle two-fourths, Fig. 11.

19. ♀. *Basal mid-dorsal yellow spot on eighth abdominal segment.* One-third as long as the segment in 8 ♀ *fraternus* (one-fourth in 3 ♀, one-sixth 1 ♀, two-fifths 5 ♀—total 53 %). Two-thirds as long as the segment 2 ♀ *externus*, one-half 2 ♀ Ill., Tex., two-fifths 2 ♀, Ill., Neb. Two-fifths as long as the segment 2 ♀ *crassus*, one-half 1 ♀.

20. ♂. *Basal mid-dorsal yellow spot on eighth abdominal segment.* One-third as long as the segment in 8 ♂ *fraternus* (one-fourth in 8 ♂, two-fifths in 3 ♂—total 57 %); one-half as long in 4 ♂ *externus*; one-third as long in 15 ♂ *crassus* (two-fifths in 3 ♂, one-half in 1 ♂, one-quarter in 1 ♂—total 25 %).

21. ♀. *Apical lateral yellow on seventh abdominal segment.* Absent in 6 ♀ *fraternus* (very small in 6 ♀, distinct in 5 ♀—total 65 %); present in 6 ♀ *externus*; small but present in 3 ♀ *crassus*.

Finally, to record some other observations made at the same time, it may be stated that very little difference was found in the shape of the *hind margin of the occiput in the males* of these three species, as it is convex in all three, the degree of convexity varying slightly, or a slight flattening being observable in the middle. The coloring of the hind lobe of the prothorax is too variable to be considered as a specific difference. The color of the dark bands of the thorax, as brown or black, depends on less or greater age, respectively, in each of these three species. I attempted to tabulate the length of the superior appendages of the males in terms of the length of the tenth segment, but the degree of protrusion varies in different individuals at the time of death, and this caused the attempt to be given up. The basal mid-dorsal yellow spot on the seventh abdominal segment of the females is very similar in all three species, being almost as long as the segment and tapering posteriorly, in most individuals. The lower surface of the first femora is pale green in both sexes of all three species, of the second and third femora of the males of all three species blackish.

The male *fraternus* from Arkansas, above noted as varying in character No. 7, has the side of the thorax, between the first and second lateral sutures, filled solidly with pale brown, while the yellow line which ordinarily separates the antehumeral brown from the posthumeral brown is almost completely obliterated. A female *fraternus* from Arkansas (see above under No. 8) is like the Arkansan male in these respects; it also has the antehumeral yellow stripe narrower, not as wide as the adjacent half of the mid-dorsal brown band, the reverse being the case in most *fraternus*; this female has the abdomen 34 mm. long, the hind wing 72 mm.

Following is the bibliography and synonymy of these species :

Gomphus fraternus Say.

Aeshna fraterna Say, Journ. Acad. Nat. Sci. Phila., viii, p. 16. 1839.

G. fraternus Selys, Syn. Gomph., p. 28 (Bull. Ac. Belg., xxi, pt. ii, p. 47.) 1854.

G. fraternus Selys, Monog. Gomph., p. 125, pl. 7, f. 4. 1858.

G. fraternus Walsh, Proc. Ent. Soc. Phila., ii, p. 238. 1863.

G. fraternus Kellicott, Dragonf. Ohio, p. 59. 1899.

G. fraternus Williamson, 24th Rep. State Geol. Ind. p. 289, 1900, pl. vi, figs. 8, 9, 30.

Say, *l. c.*, applied the term "terminal segment" to the ninth abdominal segment, as is evident from his statement that the yellow spot on the terminal segment occupies all the side thereof and is conspicuous. His type had yellow dorsal spots on 7 and 8 but not on 9. He says indeed that the dorsal yellowish line exhibits "a spot only on two of the dilated segments," but when this is so in our Gomphinae it is the last of three dilated segments, *i. e.* the ninth, which is unspotted. Walsh says, *l. c.*, p. 240, that Say described a yellow dorsal vitta on 9 and a small median dorsal yellow spot on 10, but I cannot find anything to this effect in Say's description.

The material of *fraternus* which I have studied is as follows :

1 ♂ Columbus, Ohio, May 19, 1899; 6 ♂ 6 ♀ Sandusky, Ohio, June 25, 1896, and from June 14 to July 12, 1899; 4 ♂ St. Mary's River, Fort Wayne, Indiana, June 26, 1898; 3 ♂ 7 ♀ Elkhart, Indiana, May 15-27, 1900; 2 ♂ June 29, 1895, and 1 ♀ May 9, 1896, Illinois (special locality not given); 1 ♀ Kankakee, July 6, 1892, 1 ♀ Dixon, July 12, 1 ♂ Belvidere, July 14, 1888, all in Illinois; 1 ♂ Michigan, June 23, 1899; 1 ♂ Upper Jemmy's Creek, May 17, 1897, and 1 ♀ White River, June 10, 1897, both in Arkansas.

Gomphus externus Selys.

G. externus Selys, Mon. Gomph., p. 411, pl. 21, fig. 2. 1858.

(N. B. The female is said to have "pieds comme chez le mâle," while the male's femora are said to have "une bande, externe mal arrêtée aux autres [femora than the 1st and 2nd]. This is a character more like *crassus*; so also is fig. 2 h, of the vulvar lamina, more like *crassus*. On the other hand, chars. 10 and 12 of our *externus* agree with this description and not with those of *crassus*).

G. externus Selys, Bull. Acad. Belg. (2) vii, p. 540. 1859. (Since this description is practically only an abridgment of that of the Monogr. the remark above made concerning the vulvar lamina applies here also).

G. externus Selys, Bull. Acad. Belg. (2), xlv, p. 452. 1878. (*Con-sobrinus* is placed as a synonym.)

G. fraternus ♀ Walsh, Proc. A. N. S. Phila. 1862, p. 393 (compare Proc. Ent. Soc. Phila., ii, p. 239. 1863).

G. consobrinus Walsh, Proc. Ent. Soc. Phila., ii, p. 242. 1863.

G. consobrinus Selys, Bull. Acad. Belg. (2), xxviii, p. 178. 1869.

(The remark concerning the vulvar lamina "les pointes divariquées à angle droit" may refer to the divergence between the inner (mesal) margins of the two lobes).

I have studied the following material: 4 ♂ 2 ♀ Havana, Illinois, June, 1896 and July 9, 10, 1897; 2 ♀ Illinois June 29, 1895 and 1896; 1 ♀ Greenwood, Nebraska; 1 ♀ Texas.

De Selys, *l. c.*, 1878, gave the following distribution for this species: New Mexico, Texas, Nebraska, Illinois.

Gomphus crassus Hagen,

G. crassus Hagen, Bull. Acad. Belg. (2), xlii, p. 453, 1878.

G. crassus Williamson, 24th Rep. State Geol. Indiana, p. 288. 1900.

G. fraternus var. *Walshii* Kellicott, Jour. Cincin. Soc. Nat. Hist., xviii, p. 107. 1896.

G. externus Kellicott, Dragonflies of Ohio, p. 60, 1899.

G. externus Williamson, 24th Rep. State Geol. Indiana, p. 289, 1900. Pl. vi, figs. 2, 10, 31.*

My present material of *crassus* has been: 12 ♂ Georgeville, Ohio, June 4, 1899; 6 ♂ 3 ♀ Columbus, Ohio, May 20 to June 1, 1895-6-7-9; 2 ♂ Bluffton, Wabash River, Indiana, June 22, 1898. Hagen's type came from Kentucky.

CONCLUSIONS.

From the preceding data it appears, *for these three species*:

1. That the chief specific character (*i. e.* the least variable difference between these three species) is to be found in the shape of the superior appendages of the males.

2. That every female character, and every character common to both sexes, by which these species are distinguished from each other, is more variable than are the superior appendages of the males.

3. Walsh's remark † that the Illinois species of *Gomphus* seem to have the appendages of the males "nearly as uniform as a set of castings from the same foundry and the same

* *G. cornutus* Tough, Occas. Mem. Chicago Ent. Soc., i, p. 17, 1900, does not belong to any of these three species, and his suggestion, p. 18, that it may be the ♂ of *crassus* is not realized.

† Proc. Ent. Soc. Phila, ii, p. 239, 1863.

mould," seems to hold true for these three species, but his statement* as to the specific value of minute differences of coloration and its constancy must evidently be modified in view of the variations above detailed.

4. The shape of the hind margin of the occiput of the females, far from being a constant differential, is very variable, although the opposite view has usually been held for *Gomphus*; on the other hand the same margin in the males is nearly alike in all three species.

5. The possibility of the modification of these results by the study of material from other localities must not be forgotten; such study is very desirable.

EXPLANATION OF PLATE III.

Fig. 1. Vulvar lamina *G. crassus* ♀ Columbus, Ohio, June 1, 1896.

Fig. 2. Id. *G. externus* ♀ Havana, Ill.

Fig. 3. Id. *G. fraternus* ♀ Kankakee, Ill., July 6, 1892.

Fig. 4. Part of the left half of the vertex, dorsal view, *G. externus* ♀ of fig. 2.

Fig. 5. Id. *G. crassus* ♀ of fig. 1.

Fig. 6. Occiput *G. fraternus* ♀ Sandusky, Ohio, July 10, 1899.

Fig. 7. " " " ♀ " " " 9, "

Fig. 8. " " " ♀ " " " 10, "

Fig. 9. " " " ♀ Dixon, Ill., July 12.

Fig. 10. " *G. externus* ♀ Havana, Ill., July 10, 1897.

Fig. 11. " *G. crassus* ♀ of fig. 1.

Fig. 12. Right superior appendage, viewed obliquely from above and from the outer side, at 45° with the horizontal plane, *G. externus* ♂, Havana, Ill., July 9, 1897.

Fig. 13. Id. *G. crassus* ♂, Georgeville, Ohio, June 4, 1899.

Fig. 14. Right superior appendage, profile view, outer side, *G. externus* ♂ of fig. 12.

Fig. 15. Id. *G. crassus* ♂ of fig. 13. *a*, *b*, in figs. 12-15, tubercles.

Fig. 16. Id. *G. fraternus* ♂ Sandusky, Ohio, June 15, 1899.

Fig. 17. Apex of abdomen, ventral view, *G. externus* ♂ of fig. 12. *s*, *s'*, sternites of eleventh abdominal segment; *sp* superior appendages; *t* inferior appendage (tergum of eleventh abdominal segment.)

Fig. 18. Id. *G. crassus* ♂ of fig. 13. *s*, *s'*, *t*, as in fig. 17. The superior appendages of this male are indicated by the line - - - - . The line ——— shows the superior appendages of another male from the same locality, same date.

* *L. c.*, p. 238.

A New *Andrena* from California.

By T. D. A. COCKERELL.

***Andrena knuthiana* n. sp.**—♀ about 8½ mm. long, ♂ about 8 mm.; black with pale pubescence; face black in both sexes. Its place in the genus may be understood by the following table:

- | | |
|--|--|
| Abdomen partly or wholly rufous | erythrogastra, mariae, etc. |
| Abdomen black or dark brown, at most pale-banded | 1. |
| 1. Pubescence black | nigerrima, porterae, nigra. |
| Pubescence at least partly pale | 2. |
| 2. Face partly yellow or white. pulchella, aliciarum, cressoni, etc. (males.) | |
| Face wholly black, at least in ♀ (pulchella alone has light-face marks in the ♀.) | 3. |
| 3. Pubescence of thorax bright ferruginous, wings very dark at apex. | vulpicolar. |
| Not so | 4. |
| 4. Hair at apex of ♀ abdomen black or nearly so | 5. |
| Hair at apex of ♀ abdomen pale | kincaidii, hellianthi, etc., etc. |
| 5. Pubescence of thoracic dorsum bright ferruginous. halli, chromotricha. | |
| Pubescence of thoracic dorsum not ferruginous* | 6. |
| 6. Abdomen black without hair bands | vicinia, errans. |
| Abdomen with interrupted hair-bands | 7. |
| Abdomen with continuous bands on all the segments. | americana, electrica, apacheorum. |
| 7. Abdomen very distinctly punctate | prunifloris. |
| Abdomen tessellate and hardly or not punctate | 8. |
| 8. Basal process of labrum in ♀ long, rounded, shaped like the end of a finger; hair of thoracic dorsum strongly tinged with ferruginous. | macgillivrayi. |
| Basal process of labrum in ♀ broad, truncate-emarginate; hair of thoracic dorsum brownish-white; nervures piceous, stigma pale brown marginal with piceous; ♂ antennæ wholly black. knuthiana, n. sp. | |

The hair at the apex of the abdomen in *A. knuthiana* is sooty, a kind of dark purplish-grey. The insect was collected by the late Dr. Paul Knuth at Berkeley, Cal., Oct. 6, 1899; the ♂ frequented flowers of *Daucus carota*. The specimens were sent to by Mr. Alfken, to whom I transmitted a description, which will, I suppose, be published in the last volume of "Blütenbiologie." It seems desirable, however, to indicate the affinities of the species in an American journal.

* However, in *macgillivrayi*, it is really a sort of pale ferruginous; in *fimbriata (americana)* it is yellow.

The Coleoptera Found in a Barn.

By H. W. WENZEL, Philadelphia.

The following list is the result of an experiment made during the month of May, 1900, with the object of determining the Coleopterous fauna of an old barn. The building from which the material was collected stands in the lower section of our city, is an old wooden structure partly wrecked by age and no longer in use for storing products.

The usual species infesting stored grain were not found, with the exception of the large Tenebrionid, *Tenebrio molitor*, which was in the pupa state in large numbers on May 27th, changing into the imago a few days later. All species of Histeridæ were taken under pieces of rotten wood, covered by deep layers of damp refuse. Probably the habits of these species account for their scarcity in collections.

The Latridiidæ and Trogositidæ were all sieved from dry accumulated old hay and grain dust.

The Ptinidæ were found in a small annex formerly used for cattle. The ground was a hard dried out conglomeration of manure and dirt, almost like turf; at first but few specimens were found in it, but finally, by beating or thumping the ground, both species mentioned below appeared in great numbers.

Only species of which I have no doubt as inhabiting such places and which were found mostly in numbers are placed in this list. Several species of Carabidæ were found, but only in single numbers; as they are probably accidentals they are omitted.

The following is an enumeration of the species found:

Microglossa sp., common in damp places.

Xantholinus gularis Lec., common with above sp.

Olophrum oblectum Er., several examples. This species I have frequently found in the immediate vicinity in low meadows. Other minute species of Staphylinidæ were taken which I am unable to determine.

Ptenidium evanescens Marsh, common, sieved from damp refuse.

Sericoderus flavidus Lec., common, sieved from dry old hay.

Mycetæa hirta Marsh, very common everywhere.

Aglenus brunneus Gyll., common; an interesting blind species.

Silvanus advena Watl., very common.

Typhæa fumata Linn., common in damp refuse.

- Triphyllus* sp., several examples.
Cryptophagus croceus Zimm. ? common.
 " sp.
 " sp.
Dendrophilus punctulatus Say, common.
Paromalus conjunctus Say, common.
Paromalus 14-striatus Steph., two examples.
Saprinus placidus Er., common.
Acrilus sp., several examples.
Holoparamecus ragusæ Reitt., very common.
Cartodera ruficollis Marsh, very common.
Cartodera costulata Reitt., not common.
Corticaria serrata Payk., several examples.
Monotoma 4-foveolata Aube, common.
Monotoma parallela Lec., not common.
Monotoma americana Aube, not common.
Aphodius granarius Linn., not common.
Trox æqualis Say, several examples.
Plinus fur Linn., common.
Plinus brunnefs Duut., common.
Hexarthrum ulkei Horn, not common.

Cecropia Cocoons.

By WILLIAM T. DAVIS.

Cecropia cocoons of the "inflated" or "baggy" variety mentioned in ENTOMOLOGICAL NEWS for June and December, 1900, are to be found on numerous shrubs, but the most remarkable specimens to be collected on Staten Island occur on the swamp loosestrife or willow-herb (*Decodon verticillatus*). This shrub grows in the water and the cocoons have often been gathered in winter by walking on the ice about the edges of the ponds where the loosestrife grows. The cocoons, as a rule, are but slightly above the level of the ice and, of course, run the risk of inundation on occasions of very high water, and are also liable to be eaten by mice and other enemies. Certainly the greater number of these "inflated" cocoons are to be found at the base of bushes, and very often the caterpillars have included several grass stems or other nearby growth as additional supports to the cocoons. This in itself would account for some of the largest cocoons—they are spun loosely between

several stems or leaves in addition to the main support. This has been the observation of both Mr. Louis H. Joutel and myself.

Several years ago I noted in the Journal of the New York Entomological Society (March, 1897), that caterpillars show considerable intelligence in placing their cocoons, and gave several facts in support of the assertion. Among others it was noted that *Cecropia* cocoons are often placed on the small terminal branches of the white maple and other trees in a position that would seem at first to be subject to disaster from storms. This position was held, however, to be probably the safest on the trees, as the cocoons placed on the large and firm branches were easily opened by woodpeckers, and an instance of such an attack was given. Some of the members of the Society expressed the opinion that the caterpillars did not guard against attacks by mice or woodpeckers, and that the cocoons just happened to be where they were found. This led to an inspection of the white maples near my home, and I found on thirty-five trees one hundred and eighteen cocoons, all but five of which were placed on terminal branches, many of the branches not being larger than a lead pencil. While the cocoons thus placed sway violently in a storm, they also give way before the strokes of a woodpecker, and said woodpecker is unable under the conditions, to make a hole in the cocoon, as I have witnessed.

Synonymy of *Prosopis*.

By CHARLES ROBERTSON.

The synonymy of some species given in the ENT. NEWS., 12, 4-9, 1901, does not represent my views, and certainly is not correct in citing names I have used. I will give the synonymy which I think is correct, and under each will give my objections to Mr. Lovell's citations. Of course, my views are the result of inferences based on the descriptions and not the result of comparisons of the things described. I assume that the authors had ordinary specimens, not exceptional ones, and that their descriptions are correct for the things they had before

them. If this is not science, it is entomology. If I distinguish between what I infer and what I know, I know that *P. affinis* Rob. and the hypothetical *P. ziziae* Rob. are the same, and that *P. modestus* Rob., Tr. Am. Ent. Soc., 22, 116, includes two species.

***Prosopis affinis* Sm.**

P. affinis Smith, B. M. Cat. Hym., 1, 24, 1853, ♀.

P. affinis Rob., Can. Ent., 28, 136, 1896, ♀ ♂.

P. ziziae Cockerell, Entomologist, Aug., 1898, ♂.

With the exception of the last name, which is erroneous, Mr. Lovell's synonymy is the same as Dalla Torre's. I have not described any species under the name *P. ziziae*, and have never used that name. In a paper in Bot. Gaz., 25, 234, 236, 1898, which Mr. Lovell has seen and largely rewritten, I use the name *P. affinis* Sm. Cockerell uses the name *P. ziziae* because he is more doubtful about my determination; but as long as I distinguish the species by a character mentioned in Smith's description, I feel bound to use his name.

***Prosopis modesta* Say.**

Hylæus modesta Say, Bost. Jour., 1, 392, 1837; Lec. Edit., 2, 771, ♀,

P. affinis Smith, B. M. Cat. Hym., 1, 24, 1853, ♂.

P. affinis Cresson, Proc. Bost. Soc. Nat. Hist., 12, 270, 1869, ♀ ♂.

P. affinis Prov., Faun. Ent. Can. Hym., 727, 1882, ♀ ♂.

P. modestus Cresson, Synopsis, 291, 1887.

P. modesta Rob., Can. Ent., 28, 136, 1896, ♀ ♂.

The *P. affinis* Rob., used in Trans. Am. Ent. Soc., 22, 116, stands for the forms with spotted tegulæ, and, if cited at all, should be cited as a synonym of *P. affinis* Sm., as I use that name.

***Prosopis pygmæa* Cress.**

Hylæus modestus Say., Bost. Jour., 1, 392, 1837, ♂.

P. pygmæus Rob., Can. Ent., 28, 137, 1896, ♀.



MR. G. WESLEY BROWNING, of Salt Lake City, took the first prize for a water-color picture entitled "Under the Willows," which was shown at the annual exhibition of the Utah Art Institute. Mr. Browning says: "Next Summer is likely to find me in the country at every opportunity, but I shall always have a box and net handy." He is preparing a list of the butterflies of Salt Lake City and vicinity which will be published in the News.

Some Results of Breeding Moths of the Genus *Haploa* Hübner.

By FRANK H. FOSTER, Claremont, N. H.

The task of systematists in classifying the moths associated under this genus has been an unusually difficult one, owing to the wide variability among the imagos of nearly all the recognized species and the absence, so far as known, of any constant structural differences.

Mr. A. R. Grote's remarks upon this genus* called forth by Mr. Lyman's article and plate in October, 1887, number of Canadian Entomologist seem so eminently pertinent that I quote them here in part.

"It will be no question with the derivatists that these forms are all descended from a single species. The test by breeding from the egg must now decide whether these forms have each an independent cycle of its own or are interdependent still.

"The test for species remains to be applied to them. As yet we can only compliment Mr. Lyman's tact in sorting the moths. I had the opportunity of examining a lot of *dymene* taken in the vicinity of Buffalo, and I came to the conclusion that it was possible that the yellow and white forms are yet interchangeable.

* * * Like *Datana* and *Hemileuca*, *Callimorpha* (synonymous with *Haploa*) is an example of a generic group in which the species or forms are more nearly related than usual and is thus one of those assemblages which I have called *Progeneric*."

The tendency has been for later and fuller knowledge to reduce the number of forms entitled to specific rank. Thus Lyman in 1887 (Can. Ent., Vol. XIX, pp. 190-191) gives eight species and two varieties.

Smith in same year (Can. Ent., Vol. XIX, pp. 238-239) gives nine species and one variety. Neumoegen and Dyar in 1893 (Journal of New York Entom. Society, September, 1893, pp. 158-161) give eight species and four varieties.

Dr. Dyar's present classification, as stated in a recent letter

* Can. Ent., Feb., 1888, Vol. xx, pp. 39-40.

to the writer, and by permission referred to, is five species and twelve varieties, viz.:

1. *Haploa clymene* Brown.
2. " *colona* Hübner.
 - a. *reversa* Stretch.
 - b. *conscita* (= *lactata*.
 - c. *fulvicosta* Clemens.
 - d. *triangularis*.
3. " *lecontei* Guér.
 - a. *militaris* Harris.
 - b. *confinis* Walker.
 - c. *harrisii* n. var., Dyar MS.
 - d. *dyarii* Merrick.
 - e. *vestalis* Packard.
 - f. *smithii* n. var., Dyar MS.
4. " *confusa* Lyman.
 - a. *lymani* n. var., Dyar MS.
5. " *contigua* Walker.
 - a. *lumbonigera* n. var., Fitch MS.

The mature larvæ of several of the forms are known, and the breeding of imagos from larvæ taken at large after the winter hibernation has been several times reported, but the writer has been unable to learn of any form which has hitherto been bred from the egg and the parents preserved for comparison with their progeny.

In the hope of shedding new light upon the specific relations of some of the forms in this genus, I have attempted to present below the results of my experiments in breeding them, with some observations upon the significance to be attached to those results. I have also taken the opportunity to present some results of a study of the variations presented by a series of one hundred moths, all of which are the imagos of larvæ taken from one restricted locality, near Claremont, N. H., or the descendants in the first generation of such larvæ.

My attention was first directed to this group in the summer of 1898 by my friend Mr. Arthur C. Bradley, of Newport, N. H., who wrote me that he had a number of eggs laid by a captured *Haploa confusa* and desired to find its food plant (*Cyno-*

glossum officinale), with which he was not acquainted. I did not then know the plant, but after several unavailing trips in search of it stumbled upon it, growing in scattered groups over an area a few acres in extent on the bank of the Connecticut River, near Claremont. The locality was too remote and difficult of access to permit of its being used as a base of supply; so I dug up a number of plants and set them in a box of earth at home. Some of the plants examined on this and subsequent trips to the same spot had small larvæ upon them, which afterwards proved to be *Haploa*. Mr. Bradley fed his larvæ chiefly upon mint, but neither his nor mine survived the winter.

Late in the autumn of 1898 I found a second colony of *Cynoglossum* in a rocky pasture on the crest of a hill several miles from the first and under quite different conditions of soil and altitude.

The root leaves of the one-year plants (the plant is a biennial, producing only root leaves the first season) had survived the hard frosts, and many had oval holes in them like those made by *Haploa* larvæ, but no larvæ could be found, though search was made in the dead grass and rubbish about the roots of the plants where the larvæ might be thought to hibernate.

I resolved to visit the spot the following spring, and did so in May (1899), when I was rewarded by finding numbers of partly grown larvæ. These I brought home, and I then had some *Cynoglossum* growing in my garden from seed, I had no difficulty in rearing them.

I thus obtained eighteen imagos, one of which, to my surprise, was a ♂ *clymene*. The others, though showing quite a range of variation, were referable to *confusa*, except one dwarfed specimen marked like *lecontei* var. *militaris*. I had not observed any differences among the larvæ. These imagos, except the ♂ *clymene*, were placed on growing *Cynoglossum* plants, under a netting, and a few days later an abundance of eggs was found. One lot of about forty laid in a close group, evidently by a single female, was removed and the larvæ reared indoors. The other eggs, laid mostly on the under surface of the leaves, were left to hatch where they were laid, and the tub in which the plants were growing was kept covered with fine netting. Scores of larvæ hatched, but soon all had disap-

peared without my learning the cause, though I attributed it to a pair of daddy-long-legs (*Phalangidea*), which were, by accident, imprisoned with the larvæ. From the larvæ reared indoors I obtained in November and December ten males and four females. No attempt was made to breed from them as it was out of season. The higher and more even temperatures of the house doubtless accounted for their maturing in the autumn instead of hibernating as is their wont. In this series of fourteen moths, presumably from the same parents, the range of variation was distinctly narrower than in the series bred from larvæ taken at large. The only wide departure from the usual *confusa* form was one male, in which the median white spot on primaries was split up into a group of three oval spots. A tendency toward this subdivision of the median spot was shown by two other specimens.

This series seemed to support Mr. Lyman's statement* that *confusa* varies away from and not toward *lecontei*; but desiring to obtain more conclusive results, I visited the rocky pasture again on May 6, 1900, and secured another lot of hibernated larvæ. These, when obtained, varied a good deal in size, some being apparently in the fourth and some in the fifth stage (the normal number of stages is six), but were alike to all appearances in other respects.

Nearly every *Cynoglossum* plant, out of more than a hundred examined, showed the characteristic oval holes in the leaves, and about one in four furnished a larva. Occasionally two larvæ were found on one plant. The plants were scattered singly and in groups of two or three, rarely growing in a clump. Pretty thorough exploration of the locality showed that the plants were confined to an area of a few acres on the top of this hill. Thirty-nine larvæ were brought home and confined in breeding cages. In the last stage three of these larvæ had a slightly different appearance from the rest and were placed in a cage apart. The differences noted were a somewhat stouter body and a more hairy look, due not to a greater number or length of hairs, but to their being lighter colored and thereby more conspicuous. The stouter look was, perhaps, due to their being females, as all three produced fully marked *elymene*

* Can. Ent., October, 1887, p. 187.

imagos of that sex. Not dreaming at the time that any doubt could exist as to specific distinctness of *elymene* and *confusa* no effort was made to pair these females with males of the white-winged forms which emerged at about the same time, and they were at once killed and mounted.

Of the white-winged moths there emerged in all five males and twelve females, all with white secondaries, but showing a remarkable range in pattern of primaries, viz. :

3 ♂, 8 ♀.—These showed no very wide departure from the usual *confusa* form, though several females varied toward typical *lecontei*† in having the outer end of median white spot only slightly indented. Lyman (ibid.) and Smith (Can. Ent., Dec., 1887, p. 237) in effect found the distinction between *confusa* and *lecontei* on the shape of the median white spot. Typical *lecontei* having it entire and convex on the outer margin, and typical *confusa* having it deeply cleft by a spur from the brown band that arises just within the internal angle of the wing.

1 ♂.—(Fig. 1 of Plate) has apical, preapical and outer white spots partially fused. The secondaries have a slight yellow tinge and an unusually large brown spot near inner angle.

1 ♂.—The fifth ♂ (Fig. 11 of Plate) was almost an exact reproduction of Fig. 2 of Lyman's plate, which he calls typical *lecontei*.

2 ♀.—These varied toward typical *lecontei* and were much like Fig. 12, except that outer margin of median white spot was even less incised.

1 ♀.—In this example the broad and median white spots were broadly fused, and the oblique brown band from above internal margin to apex was entirely obsolete, and the insect looked much like Fig. 5 of Lyman's plate, which he gives as variety of *lecontei*. The secondaries had slight yellowish tinge and distinct yellowish stain where the brown spot is when present.

1 ♀.—The fourth aberrant ♀ was Fig. 2 of accompanying plate, and differed from typical *confusa* in having apical, preapical and outer white spots broadly fused and a slight yellow tinge on secondaries.

† By typical *lecontei* I mean Figs. 1, 2 and 3 of Lyman's plate accompanying his article in Can. Ent., for October, 1887.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—Ed.

PHILADELPHIA, PA., MARCH, 1901.

ONE of our esteemed subscribers writes as follows: "I welcome the NEWS as of old. It is maintaining its own, and its growth is phenomenal in every way, and can't help but be of inestimable value to its readers. There is one feature I should like to see strengthened, and that is news items of the active entomologists as to what they are doing. Brief notes on the principal publications, or any items that might be in the nature of news, would be especially welcome. Now that I am less in touch with the entomological centers I perhaps feel the absence of this feature more keenly than before, but, if I mistake not, such items would be appreciated by all, and would certainly be in keeping with the name of the publication. Please do not consider this as more than a suggestion, and take it for what it is worth." The editors of the NEWS are heartily in accord with this, and thoroughly agree with the writer, but, as they make no pretensions to being mind readers, they can't insert such items if they are not sent to them. They feel that the NEWS could be much improved if its readers and subscribers felt a more personal interest in it. It is one thing to say what should be and another to help see that it shall be. Send in your items of interest and we will do the rest.

Entomological Literature.

COMPILED BY P. P. CALVERT.

Under the above head it is intended to mention papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology will not be noted. Contributions to the anatomy, physiology and embryology of insects, however, relating to American or exotic species, will be recorded. The numbers in **HEAVY-FACED TYPE** refer to the journals, as numbered in the following list, in which the papers are published; * denotes that the paper in question contains descriptions of new North American forms. Titles of all articles in foreign languages are translated into English; usually such articles are written in the same language as the title of the journal containing them, but when such articles are in other languages than English, French, German or Italian, this fact is indicated in brackets.

4. The Canadian Entomologist, London, Ont., Feb., '01.—**5.** Psyche, Cambridge, Mass., Feb., '01.—**8.** The Entomologist's Monthly Magazine, London, Feb., '01.—**15.** Biologia Centrali-Americana, part clix, Nov., '00, rec'd. Feb. 1, '01.—**21.** The Entomologist's Record, London, Jan. 15, '01. The contents of this number are made up of a series of articles dealing with the advances in knowledge, of the different groups of insects, made during the nineteenth century. They are listed below under their appropriate headings.—**22.** Zoologischer Anzeiger, Leipsic.—**55.** Le Naturaliste, Paris, '01.—**86b.** Bulletins, Société Entomologique de France, 1899. Paris. Rec'd. Jan., '01.—**87.** Revue Scientifique, Paris, '01.—**89.** Zoologische Jahrbücher, Jena, '00.—**93.** Rendiconti, R. Accademia dei Lincei, Rome, Dec. 16, '00.—**121.** Archives des Sciences Physiques et Naturelles, Geneva, Dec., '00.

Beginning with 1901, R. Friedländer & Sohn, of Berlin, publish "Entomologische Litteraturblätter Repertorium der neuesten Arbeiten auf dem Gesamtgebiet der Entomologie." The contents of a given number of a journal are listed under its title, as we formerly did in the News. Twelve numbers per year are promised.

THE GENERAL SUBJECT.—**Bacot, A. W.** Weismannism and entomology, **21.**—**Bürger, O.** Reisen eines Naturforschers im tropischen Süd-Amerika. Leipzig, Dieterich'sche Verlagsbuchhandlung, 1900. Pp. viii, 395. 16 full page illus.—**Laloy, L.** Instinct and intelligence in insects, **55**, Jan. 15.—**Lucas, R.** [General] and **Seidlitz, G.** [Coleoptera]. Report on the scientific results in the field of entomology during the year 1898, Archiv für Naturgeschichte, lxx, ii, 2, 1 Hälfte, Berlin, Nov., '00.—**Merrifield, F.** Experimental Entomology, **21.**—**Perez, C.** On the Metamorphosis of insects, **86b**, 20, Dec.—**Rudow.** Some observations on insects' nests, Insekten Börse, Leipsic, Dec. 13, '00.—**Tutt, J. W.** Our century number [progress in entomology], **21.**—**Verson, E.** Contribution to cenocyte literature, **22**, Dec. 31, '00.—**Walther, J.** Das Gesetz der Wüstenbildung in Gegenwart und Vorzeit. Berlin, 1900, Dietrich Reimer. Pp. xiv, 175. 50 figs. [Chap. 8. The fauna of deserts].

ECONOMIC ENTOMOLOGY.—[Artault, S.] The *Platanus* and its misdeeds: a new Acarine, accidentally parasitic on man, **87**, Jan. 26.—**Bethune, C. J. S.** Some recent work in economic entomology, Transactions, Royal Society of Canada, (2) vi, 4, Ottawa, 1900.—**Fynn, W. R. D.** (Inexpensive form of trough), **Sparks, C. W.** (result of inoculation of locust swarms.) Locust destruction. Agricultural Journal, Cape Town, Dec. 20, 1900.—**Galli-Valerio, B.** Some observations on the morphology of *Bacterium pestis* and on the transmission of the bubonic pest by the fleas of rats and mice, fig. Centralblatt für Bakteriologie, Jena, Dec. 28, '00.—**Marchal, P.** On *Chrysomphalus ficus* and minor injurious scale insects recently imported [into France], **86b**, 15, Oct.—**Noë, G.** Propagation of the blood filariæ exclusively by means of the punctures of mosquitoes, figs., **93**.—**Sanderson, E. D.** Some plant-lice affecting peas, clover and lettuce, 1 pl., **4**.—**Smith, J. B.** The role of insects in the forest, figs. Annual Report of the [New Jersey] State Geologist for the year 1899. Report on forests, Trenton, N. J., 1900.—**Webster, F. M.** Some experiments in the exportation of beneficial insects, **4**.—**Wilcox, E. V.** Abstracts of recent publications, Experiment Station Record, xii, 5, Washington, 1901.

ARACHNIDA.—**Cambridge, F. O. P.** Arachnida Araneidea, vol. ii, pp. 161-176, pls. xi, xii, * **15**.—**Cambridge, O. P.** Arachnida Araneidea, vol. i, pl. xxxv, **15**.—**Kellogg, V. L.** The triangle spider in California, **5**.—**Pocock, R. I.** Arachnida. The Fauna of British India including Ceylon and Burma. London, Taylor & Francis, 1900. Pp. xii, 279, 89 figs.—**Simon, E.** Note on the ovigerous cocoon of a *Sicarius* of Peru, **86b**, 19, Dec.

PROTOTRACHEATA.—**Cockerell, T. D. A.** The Jamaican species of *Peripatus*, Nature, London, Jan. 31, '01.—**Montgomery, T. H.** The spermatogenesis of *Peripatus (Peritopsis) balfouri* up to the formation of the spermatid, 7 pls., **89**, Abth. f. Anat., xiv, 2, Dec. 31.

COLLEMBOLA.—**Boerner, C.** Preliminary communication on some new Aphorurinae and on the classification of the Collembola, **22**, Jan. 7, '01.—**Folsom, J. W.** The distribution of Holarctic Collembola, **5**.

ORTHOPTERA.—**de Bormans, A., and Krauss, H.** Forficulidæ and Hemimeridæ, 47 figs. Das Thierreich, Eine Zusammenstellung und Kennzeichnung der rezenten Tierformen. 11 Lieferung. Berlin, Oct., 1900.—**Burr, M.** Review of the progress of the study of Orthoptera in the nineteenth century, **21**.—**Giglio-Tos, E.** Orthoptera of the voyage of Dr. A. Borelli to Matto Grosso and Paraguay, Bollettino, Museo di Zoologia ed Anatomia Comparata, R. Università di Torino, 377, Aug. 15, '00.—**McNeill, J.** Revision of the Orthopteran genus *Trimerotropis*, * 1 pl., Proceedings, United States National Museum, No. 1215, Washington, '01.—**de Sinety, R.** Remarks on the visceral nervous system, the dorsal vessel and the genital organs of the Phasmodæ, **86b**, 16, Oct.

ODONATA.—**Hine, J. S.** A new species of *Gomphus* and its near relatives* ; A comparative study of *Gomphus fuscifer* and *villosipes*, 1 pl., The Ohio Naturalist, i, 4, Columbus, O., Feb., '01.—**Kirby, W. F.** The progress of our knowledge of the Odonata (Dragonflies) during a century and a half., 21.

HEMIPTERA.—**Ball, E. D.** Notes on the Acocephalina (Homoptera-Jassidæ),* 1 pl., Proceedings, Iowa Academy of Science, vii, Des Moines, '00 ; New Jassidæ from the Rocky Mountain and Pacific region,* 4.—**Bergroth, E.** Diagnosis of a new species of the genus *Arachnocoris* Scott (Nabidæ), 86b, 15, Oct.—**Champion, G. C.** Rhynchota Heteroptera, vol. ii, pp. 337-344 [Saldidæ*], 15.—**Cockerell, T. D. A.,** and **Parrott, P. J.** Table to separate the genera and sub-genera of Coccidæ related to *Lecanium*, 4.—**Osborn, H.** See Hymenoptera.

COLEOPTERA.—**Beare, T. H.** The literature of British Coleoptera for the past century, 21.—**Belon, P.** Diagnosis of a new Longicorn from Bolivia belonging to the genus *Mecomelopus* Th., 86b, 9, May.—**Boileau, H.** Diagnoses of new Lucanidæ, 86b, 11, June ; Note on some new or little known Lucanidæ from South America, 86b, 15, Oct.—**Dierckx, P.** On the pygidial glands in the Carabids and Dytiscids, 86b, 11, June.—**Donisthorpe, H. St. J. K.** Evolution of our knowledge of myrmecophilous Coleoptera, 21.—**Fauvel, A.** On the value of the pygidial glands for the classification of the Carabids according to the memoir of P. Dierckx, 86b, 13, July.—**Fletiaux, E.** Description of a new species of *Lissomus*, 86b, 10, May ; Description of a new species belonging to the genus *Teslasena* (Elateridæ), 86b, 11, June ; Description of a new genus of Cicindelidæ, 86b, 13, July.—**Francois, P.** On the pygidial glands of the Brachynidæ, figs., 86b, 12, June.—**Gounelle, E.** Note on the genus *Migdolus* and description of the female of *M. Fryanus* Westw., 86b, 12, June.—**Leger, L.,** and **Hagenmuller, P.** On the structure of the Malpighian tubules in some tenebrionid Coleoptera, figs., 86b, 11, June.—**Lesne, P.** On the use of the caducous mandibular appendages of the Brachyrrhinidæ, 86b, 8, April.—**Wasmann, E.** New Doryline guests from the neotropical and the ethiopian faunal regions, 89, Abth. f. System. xiv, 3, Dec. 28.

DIPTERA.—**Basili, A.** Fecundation, and immunity against Proctosoma, in *Culex pipiens*, 93.—**Chagnon, G.** Preliminary studies on the Syrphidæ of the province of Quebec, Naturaliste Canadien, Chicoutimi, Quebec, Jan., '01.—**Howard, L. O.** On some Diptera bred from cow manure, 4.—**Jourdain, S.** Buccal apparatus of *Pulex*, 86b, 11, June.—**Kellogg, V. L.** Food of larvæ of *Simulium* and *Blepharocera*, 5.—**Lecaillon, A.** On the ciliform prolongations of certain cells of the adult gnat, *Culex pipiens* L., 86b, 18, Nov.—**de Meijere, J. C. H.** On prothoracic stigmata of Dipterous pupæ, 22, Dec. 31, '00.—**Meunier, F.** On the Conopiaria of the tertiary amber, figs., 86b, 8, April ; Note on the Dolichopodidæ of the tertiary amber, 86b, 16, Oct. ; Studies on some Diptera of the tertiary amber, figs., 86b, 17-18, Nov.,

19, Dec.—**v. d. Osten Sacken, C. R.** On the new nomenclature of the family Cecidomyiæ, adopted by Mr. Rübsaamen and others, **8**.—**Prenant, A.** Cytological notes: tracheal cells of *Oestrus*, 2 pls., Archives d'Anatomie Microscopique, iii, 4, Paris, Dec. 25, '00.—**Ver-rall, G. H.** Dipterology of the nineteenth century, **21**.

LEPIDOPTERA.—**Barnes, W.** Descriptions of some new species of North American Lepidoptera*, **4**.—**Busck, A.** *Nepticula pomivorella* Packard, alias *Micropteryx pomivorella* Pack., **4**.—**Chapman, T. A.** Sidelights on the Lepidopterological work of the nineteenth century, **21**.—**Dod, F. H. W.** Preliminary list of the Macro-lepidoptera of Alberta, N. W. T., **4**.—**Dyar, H. G.** Notes on the genitalia of *Hali-sidota Harrisii* Walsh, figs., **4**; Life histories of North American Geo-metridæ, xix, **5**; A century of larval descriptions, **21**; See Hymenop-tera.—**Fischer, T.** On the transmission of newly acquired characters and the effects of temperature on the colors of Lepidoptera, **121**.—**Frings, C.** Still more on persecution of butterflies by birds, Societas, Entomologica, Zurich-Hottingen, Jan. 1, '01.—**Godman, F. D.** Lepid-optera Rhopalocera, vol. ii, pp. 533-556, pls. xcvi, xcvi [Hesperidæ*], **15**.—**Grote, A. R.** The century and the Lepidopterist, **21**.—**de Joannis, J.** Note on some Microlepidoptera of which the larvæ feed on the hairs of animals, **86b**, 13, July.—**Mansion, A.** Habits of *Liparis*, **87**, Jan. 12.—**Perez, C.** On a new *Coccidium*, a coelomic parasite of a Lepidopter, **86b**, 14, July; On the cephalic appendage of certain sphinx chrysalids, **86b**, 14, July.—**Prout, L. B.** The Lepidop-terological books of the Nineteenth Century, **21**.—**Semper, G.** Die Nachtfalter, Heterocera, in: Reisen im Archipel der Philippinen von Dr. C. Semper. 2ter Theil. Wissenschaftliche Resultate, vi, 4, Wiesbaden, Kreidel's Verlag, 1900. 5 pls.—**Sharpe, E. M. B.** A Monograph of the Genus *Teracolus*, part viii. London, Lovell Reeve & Co. 1900. Pp. 85-100, pls. 28-31.—**Thomann, H.** A case of symbiosis of ants and caterpillars, **121**.

HYMENOPTERA.—**Anglas, J.** On the histolysis and histo-genesis of the muscles of the Hymenoptera during metamorphosis, **86b**, 18, Nov.—**Bloomfield, E. N.** Notes on phytophagous Hymen-optera 1800-1900, **21**.—**Bouvier, E. L.** The variations in dwelling place among the *Phlanthus*, Comptes Rendus, Société de Biologie, Paris, Dec. 29, '00.—**du Buysson, R.** Nest of *Polybia phthisica* Fabr., fig., **86b**, 7, April.—**Cockerell, T. D. A.** (Hymenoptera Apoidea*), **Dyar, H. G.** (Lepidoptera Heterocera), **Osborn, H.** (Rhynchota Heteroptera), Some Insects of the Hudsonian zone in New Mexico, iii, **5**.—**Marshall, T. A.** Braconidæ, pp. 337-376 of vol. V bis, 71e fasc. **Kieffer, J. J.** Cynipidæ, pp. 513-592, vol. vii, pls. xxi-xxiv, 72 fasc. Species des Hymenopteres d'Europe et d'Algerie fondé par Edmond André. Paris, Dubosclard, July 1, Oct. 1, '00.—**Morice, F. D.** Obser-vations on *Sphecodes*, **8**; The century's work among the Aculeate Hy-menoptera and the Chrysidæ [two papers], **21**.—**Morley, C.** Evolu-

tion of our knowledge of the Ichneumonidæ during the nineteenth century, **21**.—**Netter, A.** Examination of the habits of bees from the double point of view of mathematics and of experimental physiology, **55**, Jan. 1.—**Paulcke, W.** On the differentiation of the cell elements in the ovary of the queen bee (*Apis mellifica*), 4 pls. **89**, Abth. f. Anat., xiv, 2, Dec. 31.—**Terre, L.** Contribution to the study of histolysis and of histogenesis of muscular tissue in the bee, **86b**, 18, Nov.—**Thomann, H.** See Lepidoptera.—**Wasmann, E.** See Coleoptera.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

MR. JAMES A. G. REHN is studying the Orthoptera collected by Dr. Smith on one his African journeys.

THE Entomological Section of the Academy of Natural Sciences of Philadelphia has received a small but interesting collection of Coleoptera taken by Dr. A. Donaldson Smith in Africa.

MR. PHILIP LAURENT has gone on another collecting trip to Florida. It is to be hoped he will seek a place where insects are more abundant, and where it will not be necessary for him to spend all his time fishing for provender.

A YEAR ago I wanted a few silk worm eggs to rear a colony, that I might get all stages for our college collection, and it took months of correspondence before I could find them. I finally succeeded, however, and reared a large colony, and from these I reserved a number of egg clusters. It occurs to me that there may be other entomologists who would be glad to rear a small colony for the same purpose or observation. I shall be glad to give to any such a few clusters of these eggs if they are desired.—B. F. KOONS, Storrs, Conn.

Pergandiella or *Trionymus*?—These two names, applicable to the same genus of Coccidæ, were published in 1899, approximately at the same date. I am indebted to Dr. H. Skinner for the information that *Pergandiella* (in Proc. Phila. Acad.) was actually published July 26, while a separate of Berg's paper (Commun. Mus. Buenos Aires) was received at Philadelphia Aug. 11; and the journal from which it was taken Sept. 25. Berg's paper is dated May 24, and the paper containing *Pegandiella* was read at the Philadelphia Academy in May. Such are the facts at present obtainable. I confess that I am not at all clear which name has priority.—T. D. A. COCKERELL.

PROF. G. C. DAVIS, who is well known to the entomological world, is now located at Ogilby, California, where he is chemist to the American Girl Gold Mining Company. He has not lost his interest in entomology but has had little time for such studies lately.

Heterochroa californica.—I learn from Miss C. Ellis that this butterfly is common in the Sandia Mountains, N. M. This is worth recording, as it extends its range about 200 miles northward in this region. Further north, in the mountains about Las Vegas, I have never seen the least sign of it.—T. D. A. COCKERELL.

I HAVE taken last fall at Mount Arlington (N. J.), several specimens of a *Polistes*, which were stylopized with males and females of *Xenos rossi*. Have also taken there several *Polistes* with the empty pupa cases of the male *Xenos*. Have taken seven of the first described wasps alive with me across the continent to California and have kept them several weeks, feeding them on different kinds of fruit, hoping that the *Xenos* males will hatch; but the wasps died all (the last fully four months after the capture) without yielding a single live *Xenos*. I dissected the abdomen of one of my prisoners and have taken out of the pupa case a fully developed but dead male *Xenos*, the latter evidently having died before its host. Unfortunately this artificially-acquired parasite had its wings in the folded state of the pupa, and I was unable to spread them, in spite of several softening methods. Could you suggest me some way of getting the wings in their proper shape? The beetles are otherwise perfect and even dark colored, so that it looks to me almost as if they would have been killed by the host or one of its friends before being able to leave their breeding place.—A. FENYES, Pasadena, Cal.

Typhlopsylla octactenus Kol.—In his "Preliminary Studies in Siphonaptera," published in the *Canadian Entomologist* in 1895 (Jan.—Aug.), Prof. C. F. Baker, speaking of the genus *Typhlopsylla*, says: "The above five species (referring to *unipectinata*, *octactenus*, *hexactenus*, *pentactenus* and *dictenus*) of *Typhlopsylla*, are all bat fleas, and have been found on a number of kinds of bats in various parts of Europe. I regret to say that I have not been able to obtain any bat fleas from this side of the water."

Insomuch as Prof. Baker had at that time made quite extended collections of Siphonaptera it may be of interest to some to know that on April 28, 1900, I secured four specimens of *T. octactenus* from bats taken near Ithaca, N. Y. Two species were taken, *Myotis subulatus* (Say), the little brown bat, and *Vespertilio fuscus* (Beauvois), the brown bat. As they had come in contact with each other before the fleas were secured, the latter may have passed from one host to the other, so I am at a loss to know to which to assign the species. *Vespertilio fuscus*, it is interesting to note, is found in both the Old and New World.—C. O. HOUGHTON, Ithaca, N. Y.

ON September 6, 1900, I captured a *Euptoieta claudia* in Bloomfield, near Hartford city line.—SIDNEY C. CARPENTER, Hartford, Conn.

DR. A. D. HOPKINS is about completing a monograph of the genus *Deudroctonus*, which will make one hundred pages. Dr. Hopkins is an authority on the *Scolytidæ* from both a systematic and economic standpoint.

MR. W. H. ASHMEAD, Assistant Curator of the U. S. National Museum, is studying the Hymenoptera collected by Prof. Kincaid of the Harriman Alaska Expedition. Before this expedition only 30 species were reported from Alaska. Mr. Ashmead will include in his paper over 250 species, three or four being common European species, and will be reported for the first time from America.

CAPTURES OF 1900.—July 3d, two *Papilio ajax* ♂; July 4th, three *Papilio ajax*, 2 ♂, 1 ♀ (feeding on milkweed). Aug. 17th, *Papilio cressphontes* ♀. Sept. 3d, *Ellopos tantulas* ♂. Sept. 11th, *Erebus Odora* ♂. Sept. 19th, *Erebus odora* ♀. Nov. 17th (a cold day), *Protoparce cingulata* ♀ (sitting on the stem of a tree). As much as I know, *tantulus*, *cingulata* and *ajax* were never captured here before. They are all, with exception of *Erebus odora* ♀, in good condition.—PROF. HENRY WORMSBACHER, Jersey City, N. J.

ASAPHES A SYNONYM.—In looking over W. H. Ashmead's "Classification of the Ichneumon Flies" I came across the name *Asaphes* for a genus of *Pteromalidæ*, erected by Walker in 1834. Kirby first applied the name *Asaphes* to a genus of *Elateridæ* in 1837, and it should therefore be removed from the catalogues of Coleoptera. Possibly *Hemicrepidius* of Germar should be used in its stead, but I will leave this question to some Coleopterist who has access to the requisite literature.—FREDERICK KNAB.

WHILE visiting a friend of mine at his work in a coal mine I was surprised to see several moths sitting on the roof or ceiling of the mine, but having no means to secure them I left them till later. On Jan. 19 I took a lantern and cyanide jar and made a thorough examination of the mine, and in a short time secured 25 fine, perfect specimens of *Scoliopteryx libatrix*. Some were found as far in as 75 yards from the entrance of the mine. Some were very wet, but there was not a torn or rubbed specimen among them.—FRED. MARLOFF, Oak Station, Pa.

"Beware the bad mosquito,
It is a dangerous thing;
It carries 'round malaria,
And it has a spotted wing.

"The *Culex* wears his whiskers long,
Anopheles wears his short;
But are their voices just the same,
When on bare legs they sport?"

Doings of Societies.

At the January meeting of the Feldman Collecting Social, held at the residence of Mr. H. W. Wenzel, 1523 S. Thirteenth Street, twelve members were present.

This being the annual meeting the President read his address, reviewing the progress of the Society, and speaking of the advances made in the methods of collecting insects.

Prof. J. B. Smith referred to a former communication on a trip to Lahaway, N. J., and stated that he had found there five species of Scolytidæ in decaying pine trees, including a new species of *Dendroctonus*. Trees attacked by this insect may be recognized by large adherent clumps of pitch, in the center of which the insects live. All stages of the insect had been found. Specimens of pine bark illustrating the burrowing of the *Dendroctonus* were shown. *Tomicus caligraphus* makes galleries extending in all directions, and are the largest made by any species of *Tomicus*. *Tomicus cacographus* lives much higher in the trees than the two preceding species which dwell in the thicker bark. *Crypturgus alutaceus* makes small galleries, irregular in form and close together. A species of *Scolytus* occurred in the trees, but no specimens were found. It makes very short burrows. *Gnathotrichus materiarius* differs in habits from the others mentioned by penetrating into the solid wood, the galleries being quite long, and makes small larval burrows. Other insects, such as feed on Scolytidæ or had entered the burrows for other purposes, had been found. A piece of wood containing a *Monohammus* larva was shown and its mode of entry and exit described. Some twigs of hickory girdled by *Oncideres* were exhibited. In 30 or 40 twigs not a single larva had been found, which raised the question whether the girdling was always done for oviposition.

Mr. Daecke said he had frequently observed *I'essa crabro* gnawing at twigs, and suggested this wasp may be responsible for some of the girdling.

Mr. Johnson stated that he had found several species of Scolytidæ on the spruce at North Mountain, Pennsylvania. *Dendroctonus rufipennis* had made burrows, but no live specimens had been found and its work was confined to the base

of the tree. *Crypturgus attamus* burrows were plentiful throughout the branches.

Mr. H. Wenzel mentioned that at Dacosta, N. J., he had observed that pine stumps were completely riddled by the burrows of a species of *Dendroctonus*. He also exhibited a specimen of the European *Demetrius atricapilus* taken near Camden, N. J., March 5, 1899. Also a specimen of the rare *Xantholinus gularis* which he had taken rather abundantly in the Philadelphia "Neck."

Dr. Skinner referred to the large larva mentioned at the last meeting, and stated that he believed it to be *Stenodontes mandibularis* and not a *Mallodon*. The larva had been found around the roots of the mesquite.

Mr. H. Wenzel exhibited specimens of *Stenodontes mandibularis*.

Dr. Skinner referred to the theory of the transmission of disease by insects, and spoke of recent experiments which tended to prove that mosquitos are responsible for the transmission of yellow fever. As early as 1804 a doctor in Mobile had asserted his belief that the mosquito was a carrying agent of the disease, and in 1882 a certain author had held this insect responsible for transmitting malaria.

The following officers were elected for the ensuing year : President, Charles W. Johnson ; Vice-President, Charles R. Boerner ; Secretary, William R. Reinick ; Treasurer, Henry W. Wenzel.

WILLIAM J. FOX, *Secretary*.

The regular stated meeting of the Feldman Collecting Social was held Wednesday evening, February 20th, as the guests of Dr. Henry Skinner, at his residence, 716 North Twentieth Street, Philadelphia. Eleven members present. President Charles W. Johnson in the chair.

Professor J. B. Smith read a communication from our fellow-member, Mr. Philip Laurent, who is on a collecting trip in Florida, stating that the collecting was poor. Professor Smith also stated that he wanted to find what the larva of the mosquito does in winter, and for that purpose he obtained a number of pitcher plants and found quite a number of larvæ frozen in the

ice; digging a number out he placed them in a tumbler of water; as soon as the water became somewhat warmer the larvæ began to move. Mr. L. O. Howard in his paper upon mosquitoes stated that they hibernated as adults, but Professor Smith's observations seem to show that they pass the winter in the larval state and are not effected by ice. Mr. Howard also stated that larvæ do not stay under water longer than about one minute, and that their gravity is so great that they would sink without wriggling; but these remained under water much longer; in one case ten minutes, and they are able to keep at the surface of the water without wriggling, the motion of the ciliæ also seems to help them in moving.

Dr. Skinner mentioned that the temperature or chemical condition of the water might have something to do with these facts, and suggested that it might be advisable to make repeated observations. Professor Smith also spoke about swarms of mosquitoes in Alaska, and said that when the snow recedes they greatly increase in number, and suggested that they most likely wintered in the larval state in ice, which does not get below 32 degrees.

Dr. Skinner also spoke upon observations made during the Second Ross Expedition upon the larva Lepidoptera, which were frozen and thawed a number of times before dying. This was further discussed by Messrs. Johnson, Wenzel and Daecke.

Mr. Wenzel said that *Harpalus caliginosus* had only been found around the habitat of man. He also mentioned that in one species of *Psclaphid*, which he had seen in a number of collections, all were males. Mr. Fox suggested that the females may have been described under different names. Discussed by Messrs. Johnson, Smith and Fox.

Mr. Daecke exhibited a wasp nest from Bloomfield, N. J., from which he obtained three specimens of *Odynerus bireni-maculatus*. He also exhibited galls of *Andricus cornigera* from which specimens of *Sesia scitula* had emerged.

Dr. Skinner exhibited all the species of the *nokomis* and *nitocris* groups of the genus *Argynnis*, and showed differences in sexes and color variations.

Mr. Johnson exhibited two specimens of *Microdon aurulentus*

Fabr., collected by Mr. Charles T. Green at the Lehigh Gap, Pennsylvania, in July; also *Microdon rufipes* Macq. from Louisiana, and *Microdon megalogaster* Snow from New Jersey and Pennsylvania, and spoke of their synonymy and distribution. Discussed by Messrs. Fox, Smith and Wenzel.

Dr. Skinner read a paper upon "Transmission of Disease by Insects," which contained some very interesting facts about the manner in which bacteria are carried by insects.

WILLIAM REINICK, *Secretary*.

The thirteenth regular meeting of the Harris Club was held at 35 Court Street, Boston, on the evening of January 18, 1901. Vice-President Newcomb presided, and eleven other persons were in attendance. The election of officers for the ensuing year resulted as follows: President, H. H. Newcomb; Vice-Presidents, P. G. Bolster, W. F. Low; Secretary and Treasurer, W. L. W. Field.

Mr. R. G. Higbee was elected to active membership.

Mr. Field exhibited a series of hybrid butterflies of the genus *Limnitis*, and Mr. Low showed an interesting collection of hybrid Saturniidae. Mr. Newcomb displayed a box full of arctic butterflies collected on the coasts of Alaska and Siberia by Lieut. Philip H. Scott of the revenue cutter "Bear."

W. L. W. FIELD, *Secretary*.

A meeting of the Entomological Section of the Academy of Natural Sciences, of Philadelphia, was held January 24th, with twelve persons present. Mr. Laurent, Director, presided. Mr. Laurent presented some egg-masses of *Tenodera sinensis*. Dr. Calvert said Dr. Castle had mentioned having seen certain worms that had been passed from the bowels of a young girl, one of his patients. Dr. Calvert had brought a number of specimens of intestinal worms from the Leidy collection of the University of Pennsylvania, which he exhibited. Dr. Castle stated that none of the specimens shown corresponded with those passed by his patient. The effects of poisons on insects were discussed by the members. The slight effect of "cyanide" on some insects was pointed out. Mr. Laurent spoke of the introduction of the two large mantids *Tenodera Sinensis* and

Mantis religiosa into Pennsylvania and New York respectively. He had found egg-masses of *sinensis* in great abundance at Mt. Airy, Philadelphia, this fall. Photographs and specimens of the egg-masses were shown. Mr. Johnson said he was sorry to say a manuscript name in the New Jersey list of insects had caused some trouble. He had placed the manuscript name *Pipunculus houghi* in the list; but recently Dr. Kertzs had applied the same name to the *P. lateralis* Walker, not of Macquart; another name will therefore have to be given to the New Jersey species.

HENRY SKINNER, *Recorder*.

The special meeting of the Newark Entomological Society, held at the residence of President Buchholz, February 3rd, was a very successful and enjoyable affair. Mr. Buchholz displayed his collection of Lepidoptera, which includes North American species throughout the order. The host provided a substantial supper, at which those present discussed topics of entomological and general interest for several hours before adjourning.

S. T. KEMP, *Secretary*.

A regular meeting of the Newark Entomological Society was held at Turn Hall Sunday, February 10th, President Buchholz presiding. Thirteen members were present. Visitors, Messrs. C. Rummel and J. Hermann. Mr. Bischoff displayed his extensive collection of Cicindelidæ, also some Carabidæ, mostly of the genus *Cychrus*. Mr. Kircher exhibited, preserved in alcohol, some coleopterous larvæ and imagoes, taken out of cigars in which they were breeding. They appeared to be *Lasioderma serricorne*. The same gentleman also showed some odd forms of several species of Lepidoptera, the most striking of which was an aberration of *Argynnis cybele*, caught some years ago in the vicinity of New York. It has a black suffusion covering a large portion of both fore and hind wings.

Messrs. Holterman and Broadwell each exhibited an interesting collection of Lepidoptera. A proposition to move the headquarters of the Society was rejected by a large majority.

Mr. Charles Rummel, of Elizabeth, N. J., was unanimously elected a member of the Society.

S. T. KEMP, *Secretary*.



PHILAMPELUS ELISA
(SMYTH)

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

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Some Results of Breeding Moths of the Genus *Haploa* Hübner.

By FRANK H. FOSTER, Claremont, N. H.

(Continued from March number.)

As the moths emerged I isolated five pairs without attempting any selection, in as many different cages, and obtained fertile eggs from two of the females.

These two pairs of parents, after the eggs were laid, were killed, mounted and labeled so as to be identified with their progeny. The parents will be referred to as pair No. 1 and pair No. 2. They are represented on the accompanying plate by Figures 1 and 2 and Figures 11 and 12 respectively.

The female of pair No. 1 laid 225 eggs. The female of No. 2 laid 275 eggs.

The two lots of eggs and the larvæ obtained from them were kept confined throughout in separate breeding cages and great care taken to avoid any chance commingling. In view of the remarkable results obtained from one of these pairings and doubts that might arise as to possibility of errors I will state that the progeny of these two pairs were the only *Haploa* larvæ I had at any time during their development. (For detailed

description of egg, larval stages, etc., see appendix to this article).

The larvæ developed very unevenly in both broods after the second month. In October many had pupated, while others were not half grown, and such as had not then reached the final larval stage were placed in a bed of *Cynoglossum* in my garden in the hope that they would hibernate there and be found in the spring. A classification of the imago of both broods follows.

PROGENY OF PAIR No. 1. 17 ♂—25 ♀.

DIVISION A.

6 ♂ 9 ♀.—These fifteen examples, a little more than one-third the whole number bred, had deep yellow secondaries, yellow abdomens and yellow suffusion of under surface of all the wings. The proportion of yellow males to whole number of males is about the same as the proportion of yellow females to whole number of females. These yellow-winged progeny divide into two distinct groups by the difference in the brown markings of primaries.

Group 1—3 ♂, 5 ♀.—One male and one female of this group are represented by Figs. 7 and 8 of plate. These vary but little among themselves. The tendency toward definition of apical and pre-apical spots is, as shown by the figures, slightly more apparent in the females.

Group 2—3 ♂, 4 ♀.—These are all alike, and one pair is shown by Figs. 9 and 10 of plate. They are like all the *clymene* I have seen, though I have some specimens of *clymene* of unknown parentage in which the secondaries are a little deeper yellow.

DIVISION B.

11 ♂ 16 ♀.—All the moths in this division resemble parents in having white secondaries with a suspicion of yellow tinge. All have white abdomens and under side of all the wings white, or as nearly so as in ordinary examples of *confusa* and *lecontei*.

These twenty-seven moths show so many variations in pattern of primaries that subdivision is not as easy as in the case of the yellow-winged group, but, utilizing the character most widely varying, they may be divided into two groups, viz.:

Group 1—9 ♂, 4 ♀.—These have the oblique brown band extending from above and within inner angle of primaries toward apex, unbroken or nearly so, and thus more nearly resemble the ♂ parent. Figs. 3 and 4 represent this group. The females have the median white spot less deeply incised on its outer end than the males.

Group 2—2 ♂ 12 ♀.—These have the oblique band obsolete, or at most represented by a projecting spur of varying form at base, and thus approach more nearly the ♀ parent. Figs. 5 and 6 are from this group. Variation is toward greater fusion of the white spots and obsolescence of the brown. One female is practically identical with Fig. 3 of Lyman's plate, above referred to, except for outer oblique band being obsolete save for a spur at base. The other females in this group show gradual approach to this extreme from Fig. 6 of accompanying plate.

Of this whole brood of moths those in Division A cannot be said to approach more nearly to one parent than to the other. Of the twenty-seven in Division B thirteen more nearly resemble ♂ and fourteen the ♀ parent. The influence of each parent would thus appear to be about equal, so far as color and markings are concerned. Each sex, however, shows a strong tendency to follow the parent of the same sex. Thus 82 per cent. of the ♂ ♂ more nearly resemble the ♂ parent. Seventy-five per cent. of the ♀ ♀ more nearly resemble the ♀ parent.

PROGENY OF PAIR No. 2. 19 ♂—21 ♀.

The chief difference between the parents of this brood (Figs. 11 and 12) is in the shape of the median white spot on primaries, which in the ♂ is *convex* on outer margin and in the ♀ *concave*. The ♀ also shows tendency toward fusion of the white spots. The differences among the progeny were not such as to admit of a classification into fairly distinct groups, as was the case in the brood above described. While no individuals reproduced the pattern of male parent exactly the general tendency of each sex to follow the parent of the same sex was quite as obvious as in the progeny of pair No. 1. A great proportion of the males were of the typical *confusa* form, and the widest departures from the normal were in the direction of

melanism, while among the females the great proportion had the median white spot simply concave on its outer margin instead of deeply cleft, and the widest departures from normal were in the direction of albinism, as shown by fusing of the white spots. Most of the moths of this brood were like Figs. 13 and 14. In no instance was any tendency toward *dymene* apparent either in marking or color of wings or body.

A tabulation of the results of the examination of one hundred moths, including all those bred from eggs (excepting the yellow-winged progeny of pair No. 1) and those bred from larvæ taken at large, was made in order to discover the relative variability of the sexes. The moths were examined for eleven different variations in markings. The general result was that in respect to variations toward melanism, such as complete subdivision of median white spot of primaries and presence of brown spots on secondaries, a much larger proportion of males than females showed the variations, while among individuals showing tendency toward albinism, such as fusion of white spots on primaries and disappearance of the brown spot or pair of spots at summit of collar, the females greatly preponderated. The tendency toward fusion of the spots was greatest in the apical and pre-apical region of primaries and decreased toward the base of wing.

To summarize the results above recorded :

1. Haploa larvæ indistinguishable among themselves, taken from one restricted locality have produced imagos ranging by insensible degrees from typical *confusa* to typical *lecontei* and even to *lecontei* var. *militaris*, with *confusa* as the dominant form.
2. Larvæ taken with the above in the proportion of about one to five or six, distinguishable by color of hairs, and only in the last stage have produced *dymene*.
3. One pair of parents nearer to typical *confusa* than to any other recognized specific or varietal type, and varying little between themselves, have produced progeny among which are forms referable respectively to *confusa*, *dymene* and *lecontei* as well as intergrades.
4. One pairing between ♂ of typical *lecontei* pattern and ♀

intermediate between typical *lecontei* and typical *confusa* produced progeny in which a large proportion were like ♀ parent, none exactly like ♂ parent, some were like typical *confusa*, and none showed any tendency toward *clymene*.

5. The tendency is marked for the males to resemble the male parent more closely than the female parent, and for the females to resemble the female parent.

6. A tendency toward sexual dimorphism is apparent, the males varying toward greater predominance of the brown and females toward greater predominance of the white.

7. The most variable markings are those on outer half of the primaries.

The above results would appear to establish the specific identity of *lecontei* with *confusa*. To maintain their distinctness one must draw an arbitrary line across a series of specimens, grading insensibly from one to the other, and there would seem to be no better reason for drawing such a distinction between *confusa* and *lecontei* than between *lecontei* and *militaris*, to which latter no one gives more than varietal rank. If any further demonstration were needed than such a series of intergrades furnishes the fact of both forms, *confusa* and *lecontei*, breeding from same parents and being indistinguishable in the larval stages would appear to establish the merely varietal rank of *confusa*.

One other question is raised not so readily capable of being decided upon the evidence thus far brought out. What interpretation shall be given to the appearance of *clymene* in a brood reared from *confusa* parents?

It is obvious that the results may be accounted for upon two different theories.

1. That *clymene* is not a true species, but a form likely to arise in any brood of *lecontei* var. *confusa*.

2. That *clymene* is a true species, and that its appearance among the progeny of *confusa* parents is due to hybridization in a previous generation.

Until someone has bred *clymene* through all its stages and from several pairs of parents, it is obvious that the question of its specific rank cannot be completely settled and, therefore,

the question as to which of the above two theories is correct must be left open.

With a view to learning what, if any, light would be shed upon this problem by the work of those who have experimented with hybridization of Lepidoptera, I have examined with much interest an article by M. A. Dixey in *Science Progress* (London and Boston) for April, 1898, pp. 185 to 202, entitled "Some Recent Experiments in Hybridization," which contains a review and summary of the published results of experiments of Dr. M. Standfuss, of Zürich. Also an article by James William Tutt in *Trans. Ent. Soc. of London*, 1898, pp. 17-42, entitled "Some Results of Recent Experiments in Hybridizing *Tephrosia bistortata* and *Tephrosia crepuscularia*."

Both articles deal chiefly with direct hybrids or "half bloods," and both writers agree in stating that hybrids are, as a rule, infertile *inter se*.

In the former article many instances of direct crossing of species are given, and a few of back-crossing between hybrids and one of the parent species. In such back-crossings where the progeny were three-fourths one species and one-fourth another as to their hereditary elements, no instance is cited of the appearance among the progeny of any individuals exactly reproducing the appearance of the species whose part in their parentage was one-fourth, the admixture of blood showing only in a modification of the characters of the predominant parentage.

In the latter article one instance only of back-crossing is given and a similar result recorded, *i. e.*, no example appeared in which the characters of the species supplying one-fourth the hereditary elements were reproduced.

In the first mentioned article instances of crossing of *Callimorpha dominula* L. ♂ with ditto var. *persona* Hbn. ♀ are given, the resulting progeny of which were "very variable in the perfect state," but "bore on the whole a closer resemblance to *C. dominula* than to var. *persona*."

Standfuss lays down the rule that "where the normal form of a species is crossed with a gradually formed local race of the same species the result is a series of intermediate forms."

If hybridization has entered into the parentage of my pair No. 1 it was obviously in a previous generation.

The parents being so nearly alike would seem to preclude the theory of one being a pure blood *confusa* and the other a hybrid between *confusa* and *clymene*. If both are direct hybrids between *confusa* and *clymene*, normal fertility would not be expected unless the specific distinctness of *clymene* and *confusa* be abandoned.

It is possible that the results might be due to interbreeding among the progeny of a "back-crossing," but I have not been able to learn of any observed case of this sort.

We seem thus to get no further than to establish the improbability of the parents of this brood being direct hybrids. It is greatly to be desired that someone should breed from *clymene* parents several series of moths. Until that has been done it seems idle to speculate further upon the parentage of pair No. 1.

I wish to acknowledge my indebtedness to Mr. Arthur C. Bradley, of Newport, N. H., and Mr. William L. W. Field, of Milton, Mass., for many helpful suggestions and the loan of books, and to Dr. Harrison G. Dyar for permission to quote his most recent views on the classification of this genus.

APPENDIX.

Life history of *Haploa lecontei* var. *confusa* Lyman.

Egg.—Shaped like a sphere, flattened at base. The flattened area is slightly concave, and in diameter about two-thirds the diameter of the egg. Diameter of egg .60 mm. The surface under a low power lens appears smooth and polished. Color when laid greenish yellow. No change of color apparent until shortly before hatching, when the dark head of embryo may be discerned at the summit of the egg through the transparent shell. The eggs are deposited on under side of leaves of food plant, sometimes scattered but usually thickly sprinkled. Not placed in contact with each other as a rule and without regularity of arrangement.

Three lots of eggs I have had under observation were all from females bred in confinement, from hibernated larvæ taken at large in May and were laid between June 29th and July 4th.

This is probably somewhat earlier than they would have been laid in a state of nature, as I observed eggs in the field on July 23d.

Duration of egg stage eight or nine days.

Larva.—Stage I. Length 1.6 mm. when newly hatched. When three days old color is light green; head black with a few scattered hairs or bristles. Prothoracic plate nearly black, not so long as the width of head. The tubercles characteristic of the family are present, their color contrasting with the greenish ground color.

First moult passed in five days.

Stage II. Length three or four mm. Color changed to gray, otherwise much as in Stage I. No longitudinal stripes yet apparent. Larvæ spin down by a thread when disturbed. During first and second stages the larvæ feed from the under side of the leaf on the parenchyma alone, leaving the epidermis of the upper side and the veins intact. Duration of second stage five days.

Stage III.* Length seven or eight mm. Head shining black with few hairs or bristles. Body above with a light bluish drab dorsal stripe, and a narrower subdorsal line of same color separated by a dull black line. A similar dull black line runs between the subdorsal drab one and the lateral yellow stripe. The latter is conspicuously creased with black. A subspiracular line of a pale yellow also creased with black and indistinctly connected by broken lines and spots with the upper yellow stripe. Prolegs with a blackish patch outwardly. Ventral and inner side of prolegs pale flesh color with a few dark dots. The longitudinal lines are quite even in width throughout, but the edges are irregular and broken. Tubercles black, and from each radiate about twenty stiff hairs of moderate length. Hairs blackish except on subspiracular tubercles where they are lighter colored. Duration of third stage nine to fourteen days. Growth quite slow. Larvæ in this stage eat oval holes quite through the leaves from below,

* See Lyman's description, Can. Ent., 1887 (vol. xix, p. 186). His description of *confusa* larva five-sixteenths of an inch long corresponds to Stage III.



HAPLOA (FOSTER).



but do not, as a rule, eat upon the edge of the leaf until they are short of food.

Stage IV. Much as in stage three, except that the dorsal line is yellow instead of drab. Growth very slow. Length eleven or twelve mm. Duration of this stage not accurately observed, but probably two to three weeks. In nature some hibernate in this stage and some in the following stage.

Stage V. Coloring and markings as before. Growth slow. Duration of this stage very variable.

Stage VI. Head shining black with a few scattered hairs also black. Clypeus brown, palpi yellow at base, brown at tip. Body deep black. A dorsal yellow stripe about one-tenth the width of body. Edges finely but irregularly indented with black; usually cut transversely on middle of each segment by black. Color of line sometimes deepening to orange on the middle of the segments. Traces of a subdorsal whitish line consisting of broken and irregular series of spots on the black ground color. A conspicuous lateral yellow stripe above the spiracles, a little wider than the dorsal line, consisting really of a series of irregular linear spots with their length at right angles to the direction of the stripe. This stripe connects below by dots and lines with a substigmatal line, narrower and paler than the upper one, and like it creased with lines of the ground color. Traces of a subventral yellow line on the bases of the legs. Leg plates black. Ventral surface pale gray with a few minute dark dots. Tubercles polished black, those above the spiracles having blue reflections, each giving rise to about twenty radiating stiff short hairs, which are black above the spiracles and whitish below. Length when full fed 28 to 32 mm.

Pupation.—When about to pupate the larvâ seeks the ground and makes a sort of cell on the surface, underneath the loose debris, which it lines with very cobweb-like silk, making a loose thin cocoon to which small rubbish adheres. The cocoons are often so flimsy as to fall apart of their own weight when lifted. Larval skin is not extruded from the cocoon.

Pupa is shining black 12 to 17 mm. in length, with a thick shell admitting of little or no motion in the abdominal segments.

Cremaster somewhat broader than long; posterior margin convex in outline and thickly set with slender fine hooks.

Food Plant.—*Cynoglossum officinale*.

EXPLANATION OF PLATE.

Fig. 1. *Haploa confusa* ♂ bred from larva taken at large.

" 2. " " ♀ " " " " "

" 3 to 10 inclusive. Progeny of moths, Figs. 1 and 2.

" 11. *Haploa lecontei* ♂ (typical form) bred from larva taken at large.

" 12. " *confusa* ♀ bred from larva taken at large.

" 13 and 14. Progeny of moths, Figs 11 and 12.

All in left hand column are males, in right hand column females.

Philampelus elisa (n. sp.).

Description of a new species of *Philampelus* from Mexico.

By ELLISON A. SMYTH, JR.

Va. Polytechnic Institute, Blacksburg, Va.

(See Plate IV.)

About the size and with the general pattern as in *pandorus*, coming nearest that species, and between it and *eacus* Cr., color of upper surface a clear dark green, less olive than *pandorus*. Submedian patch on inner margin of anterior wings is concave towards base of wing, and is, on the concave line, sharply darker than rest of patch, and there is a dark line within same patch anteriorly. The usual clear space in middle of wing is ashy grey-green, with no sign of rose. Medio-central and posterior nervules creamy, not rosy as in *pandorus*. Discal spot wanting. On fore costal margin, midway between base and apex of wing, is a dark green, distinct semicircle, inclosing towards margin a lighter green space; beyond this, towards apex, are several very indistinct crenate lines, the middle one of which is deep green and very distinct; these are obtusely crenate towards base of wing, and acute towards apex, as in *satellitita*. Apical lines distinct, alternate blackish and grey-green, sharply crenate. Posterior wings clear bluish grey at base; black spot towards anal angle much smaller and nearer angle than in *pandorus*; this spot extends into median black band, not separate as in *pandorus*, and the black band fades into the blackish olive margin. Anal angle is olive-green and grey,

with spots and lines patterned as in *cacus*, but no pink or rose color anywhere. Fringe on hind wings light olive.

Ground color of thorax and abdomen (much darker and greener than in *pandorus*) of a clear grey-green. Tegulæ darker, clear green. No dark olive band across abdomen at base of thorax as in nearly all of the allied species. Sides of abdomen marked at base with three black spots (*pandorus* has but one), the first two of which are large and distinct. The double row of triangular green spots on back of abdomen enclose grey-green dorsal space for whole length of abdomen.

Under surface dull smoky-olive with two or three wavy lines; outer margin fore wings lighter. No trace of rust-color or buff.

Distinctive Specific Characters.—Clear green-grey color; entire absence of any buff, pink, or rosy shades; the strongly marked green semicircle cutting fore costæ midway between apex and base; absence of discal spot; and the presence of three pairs of black spots on sides of abdomen at base.

Described from a female caught by Mr. Otis W. Barrett at Cuernavaca, Mexico, and now in my collection. Mr. Barrett wrote me that he saw but two specimens of this species in several years collecting experience in Mexico, and adds: "I was impressed with the value of these two specimens at the very first, and took extra care of them in killing them. They were both fresh, taken within an hour of each other at the same place."

I have named the moth in honor of Mrs. Barrett, who assisted her husband in his collecting in Mexico, thinking it a just compliment to her bravery and zeal in that wild country.

I realize my rashness in venturing to describe as new so notable an example of the well-known genus of *Philampelus*. I have, however, during the past year, examined either by figure, description or specimen, the species known to belong to America, as laid down in Kirby's recent catalogue, and the present species agrees with none of them. If there be anymore recently described, I have not been able to learn of them. I have in my collection ten of the twenty species (?) mentioned by Kirby; namely, *vitis*, *linnei*, *posticatus*, *pandorus*, *cacus*,

licaon Cr., *satellititia*, *anchemolus*, *achemon*, *labruscæ*, nearly all in series and of both sexes, and have had access to figures and descriptions of the others. As an excuse, therefore, for what our editor graphically calls "a head-long plunge into the sea of synonymy," I add hereto a brief comparison with the twenty American species (?) given by Kirby.

Hübner's genus *Dupo*, known as the *vitis* group, is best known by *vitis* and *linnei*; *hesperidium* is an allied form from Jamaica; *hornbeckiana* of Harris (by Clemens considered a synonym of *vitis*), and *strenua* of Ménétries are both described by Boisduval in full, and both have their fore wings marked on the *vitis* type. Boisduval says of *strenua* that it connects *vitis* and *typhon*; and Butler says of both, "allied to *linnei*." *Typhon* (Klug.), as described by Clemens and by Boisduval, suggests the rosy and brown *P. achemon*, to which Clemens says it is allied. Of this latter, *P. achemon*, there is no need to speak. We might eliminate also *Argeus labruscæ*, *phorbas* and *capprounieri* as of an entirely different type, too distinct to need any comparison.

This brings us to the *pandorus-satellititia-eacus* group; in this group the large, heavy dark-colored giants *anchemolus* and *licaon* (Cr. nec. Hüb.) may be dismissed without comparison, their size and their browns and violets and pinks making them very distinct.

Posticatus, of Grote (*licaon* of Hübner, nec. Cramer) is about the size of *elisa*, but has the primaries narrower, is brownish buff instead of green, has the inner margin of fore wings at base of the anal angle of hind wings, rosy. Mr. Butler also calls attention to the distinct rose color of secondaries.

Mirificatus, of Grote, to quote, "is allied to *posticatus*, *linnei* and *strenua*, from all differing by the white linear bands on the forewings, and their apical white line, and by the distinctly white-banded abdomen and tegulae: while nearest *posticatus* in appearance of hind wings, it is most dissimilar in markings of primaries, which are more like those of *linnei* in the evenness of the ground color."

Satellititia is altogether larger, heavier and is grey or brown-grey; with the blue-green at base of secondaries like *elisa*, but

is otherwise decidedly different in its whole aspect, lacking the green semicircle on costæ of fore wings, having but one black spot on side of abdomen at base, having a brown bar on top abdomen at base of thorax as in *pandorus*, which is wanting in *elisa* and having at least two discal spots in each fore wing, besides other differences as a long series of both sexes in my collection well shows.

P. fusimacula (Felder) is described by Boisduval as a *Sphinx*; presents a very different pattern in the fore wings, has the hind wings yellow-ochre, with a black median band, and the thorax is entirely green, with a brown-red abdomen.

P. pistacina Bdl. is now considered an *ambulyx* and need not be referred to further; it is very differently marked and colored from the *pandorus* group of *Philampelus*.

Eacus of Cramer is buffish brown, slightly inclined to olive in fresh examples; lacks the green semicircle, has but one basal abdominal spot on the brown abdomen and has the discal spot, and usually two, present.

Comparison has already been made with *pandorus* in the description of *elisa*.

This leaves only two species, both of Schaufuss. One of these, *P. vini*, is mentioned in Kirby's list. I have never heard or seen of it elsewhere. Mr. Butler, who constantly refers to Schaufuss, makes no mention of it. Kirby gives it from the "Nunquam Otiosus," p. 19, but no mention is made of such a species on that page or any other in the copy of "Nunquam Otiosus" referred to for me. I know nothing more of it.

P. cissi of Schaufuss is described on p. 19 of the "Nunquam Otiosus." Of this description Butler says "Probably the ♂ of *satellititia*, but so imperfectly described that it is impossible to identify it with certainty." I can only add that the description would apply equally well to almost any one of the *pandorus* and *satellititia* group, and should be void through its vagueness. One sentence seems to offer a tangible difference to *elisa*, i. e., "Capite et thorace utrisque *nec non corpore* in medio griseo-lineatis" (italics are mine). This certainly differs from *elisa* as the figure and my description shows.

I feel confident therefore in the validity of *Philampelus elisa* as a species, and surely all of Mexico is not known yet.

Letters from Thomas Say to John F. Melsheimer, 1816-1825.—I, II.¹

Philad^a April 12th 1816

Dear Sir

I had the pleasure on my arrival here to receive the box of Insects you sent me in the most perfect order, not an individual of the brilliant assemblage was defaced, nor an antenna or other extremity in any respect mutilated, this was the obvious result of the very careful manner in which they were put up & the attention payed to them on the passage by your friend. I am sorry I was not here at that time to receive him—But with respect to these Insects there has been a mistake between us, they are exactly the same species that your Father sent to me long since both sexes of which I now have in my cabinet (with the exception of a few) in perfect preservation & having the numbers of your catalogue² annexed to them—I remember

¹ In presenting the first of these letters to the readers of ENTOMOLOGICAL NEWS, the transcriber feels that they will be a source of interest to all concerned with Entomology, especially American students, by whom Thomas Say is held as the father of that study in this country. A rather full account of his life will be found in Volume VI of this journal. Rev. John F. Melsheimer was the son of the Rev. Fred. Val Melsheimer, and there is no record of his having contributed to the literature of insects. The author of the *Catalogue of the Coleoptera of the United States*, 1853, Friedrich Ernst Melsheimer, M.D., was another member of this truly entomological family, and, I think, represented the third generation in this country, the elder having come to America from Ehrenberg am Neckar, Germany, prior, probably, to the year 1800. They all resided at Hanover, York County, Pennsylvania.

The present transcripts and those that may follow are exact copies of the originals as far as punctuation, spelling, capitalization and abbreviation are concerned; so it may be understood that apparent errors are not due to faulty proof-reading, as the proofs have all been compared with the original manuscripts, which are contained in the library of The Academy of Natural Sciences of Philadelphia.—WILLIAM J. FOX.

² Refers to *A | catalogue | of | insects | of | Pennsylvania.* | By Fred. Val. Melsheimer, | Minister of the Gospel. | Part first. | Hanover, York County: | Printed for the author, by W. D. Lepper. | 1806. As the insects spoken of in the present letters are referred to by number corresponding to those in the work just quoted, their identity is an easy matter to those having access to the book, which, however, is exceedingly rare.

handing you two lists of numbers of Insects referring to your catalogue, one of which I observed to you your Father had sent me & those referred to by the other I requested you to send, it was here the mistake undoubtedly occurred—I have selected of those you sent 12 or 20 to replace such as were injured in my cabinet & the remainder together with some India Insects, I have put up to send to you but I do not know any person in Baltimore to whom I could consign them—

I will make a few remarks on some of the species you sent me—

1—Your N^o 51 is the same with 45 (Ammon) that your father sent me it does not agree with the description of that Insect, "Thorax 3-toothed &c"—with the description of *Janus* I am unacquainted it may probably be that insect—the thorax is certainly unarmed though it is cut down before abruptly & irregularly—

2—*Anobium Pertinax* differs I find sometimes very much in its depth of colouring, though always brown, yet it is sometimes of a much lighter tint with the eye perfectly black—this may be a sexual difference, my lighter one is I believe a male.

3—The Insect your Father sent me as 294 (is perhaps the 296) it is larger than the *Opatrum Clathratum*—Black with four rufous macula on the elytra—Your 294 is I have no doubt the right one as it is a scarce insect & that the number is marked as such in the catalogue.

4—694 & 695 are very similar I can discover very little difference in the markings

5—Your 857 is black with a rufous thorax & 3 raised lines on each elytron

Your 856 is the same with your fathers 857 & his 856 is entirely black—

I shall now take the liberty to send you the numbers as referring to your catalogue, of Insects I should be extremely happy to receive—You will observe that I have disposed of them particularly the first few agreeably to Latreille

There is a copy in the library of The Academy of Natural Sciences of Philadelphia. The use of the words "your catalogue" by Say is probably due to inadvertence, as its author was the elder Melsheimer.—W. J. F.

[Here follows a list of 231 species indicated by number]

Of the several Genera that are included within these numbers your father sent to me all such are are not here enumerated which were all that I sent for at that time, so that all I now want are here enumerated, the remaining families I will trouble you for at a future time——

But you must allow me to recompense you for them, I know well the trouble & expense of collecting, and how precious they are when obtained, particularly new species——

I have already commenced describing & my desire to preserve the names as given by your Father & yourself, renders me the more anxious to receive these numbers——¹

I shall be very happy to receive any observations you may favor me with upon these very interesting little animals, either with respect to their arrangement, manners & habits, their life & conversation &c

I remain very respectfully

Your Ob^dt Serv^t

THOMAS SAY.

Philad^a May 24th 1816

Rev^d Jn^o Melsheimer——

I had the honor to write you under date of _____ when I acknowledged with thanks the receipt of the insects you were so good as to send me ; & mentioned the mistake that had occurred, the blame for which, I am myself subject to——I wrote at the same time for other Insects which were particularly enumerated in the letter all of them you would oblige me by by sending as early as convenient to yourself to the Care of

“ Mr. James Griffiths

at Peale's Museum

Baltimore——for Tho^s Say

Philad^a

By this Gentleman who has kindly offered himself, we can at any time transmit to each other Insects &c with the most perfect safety as far as his attention can secure them——

I had the pleasure to find a very fine & remarkable new insect the other day on the banks of the Wissahickon a few miles from Philad^a it is of that singular genus *Diopsis* of which

¹ Say's first entomological paper appeared in June, 1817.—W. J. F.

but one species has as yet been described, this will form a second—have you ever met with it? it is not half the size of the *Ichneumonia* & the peduncles of the eyes very short comparatively—I will seek in the same place for a duplicate, & if I am so fortunate as to find one I will send it you with those that are ready for you—

I am about sending to Europe for entomological books, & shall be very happy to receive your opinion as to such as I ought to order—it is certainly of the first importance to a naturalist to know what has been done by others in his particular science in order that his researches may be directed to proper objects & that he may not do over again what has been better done by his predecessors—I am determined to be as cautious as possible in this respect—I have forgotten the title of the work you shewed me containing criticisms on Latreille's system you would oblige by adding its title to the list—

That you may enjoy health & happiness & length of life for the pursuit of this charming science is the sincere prayer of Your Most obed^t Serv^t

Thomas Say

Over the Range in a Wagon.

By PROF. and MRS. A. J. SNYDER.

On July 9th, having left Belvidere, Ill., in its morning freshness, we caught the Colorado Special at DeKalb with a fixed and deliberate purpose of reaching Denver, Colorado. During the westward journey we watched as closely as possible the change in bird and insect life, trying to gain, even from the rapidly moving train and in the brief stops at stations, some better idea of those sections in which eastern and western species overlap. Nebraska is said to be the great territory for birds from both sections, but in insect life there seems to be more variety, some western species reaching eastern points, perhaps even beyond Illinois, while a few eastern species have crossed the continent westward bound. In brief observations, *Chrysophanus xanthoides*, or the variety *dione* has been noted, while all other species seen from the train seem ot

be eastern. This season, at Julesburg [just over the line], we found *Cleome* abundant and on its blossoms numerous butterflies. *Pieris protodice*, *Euptoieta claudia* and a *Heliothis*, probably *dipsacens*, were abundant, as well as many smaller moths which the brief stay at the station did not permit us to capture.

At 4 o'clock P.M. of the 10th, we were in Denver on our way to the hotel. Collecting in or near large cities has always proved unprofitable unless enough time could be taken to get outside the limits and to find the good collecting grounds; so our main object here was to outfit for the trip to the mountains. The "we" of this trip consisted of W. E. Snyder, of Beaver Dam, Wis., our two little girls and ourselves.

Having brought letters to two business men residing near Denver who were supposed to be able to aid us in outfitting, our first object was to find one of these parties and secure his suggestions. On the morning of the 11th of July, we met Mr. Charles Combs and with him visited the various stockyards and sales stables in search of an outfit. At Union Stockyards we finally found a team which seemed to answer our purpose. There was nothing handsome about the animals but they were used to the climate and the mountain roads; and, while too old to demand a fancy price, and too ungainly to please the fastidious, were well suited for our purpose. This team we purchased, with an old harness thrown in, for \$40. We next obtained a light lumber wagon, second hand, at the same price. This we had altered by extending the sides about eight inches at the top and putting on hoops, over which a canvas cover could be placed. All of these purchases and changes took time, yet it made it possible for us to purchase provisions for the trip, secure a wire mattress [just wide enough to fit on top of the extended box of the wagon and form a comfortable bed], and also do a little sight seeing in Denver.

Toward evening of the 12th of July, we might have been seen driving a gray and bay plug team along the shady side of the business streets of Denver, and a little latter we were at the side entrance of the hotel, hastily piling trunks, collecting material and ammunition into the wagon, then seeking a more retired street and hastening out of the city. We drove some

six miles that evening to a friend's residence in the suburbs. Three of the party that night slept in a bed for the last time in seven weeks, while the other two made tent and rolled up in blankets for the first night in camp. Oh, those Western mosquitos, and the first night out! Whether they belonged to the genus *Anopheles* or were the more common representatives of the genus *Culex* did not worry us, but their bites did, perhaps, more so than at any other time during our journey. In the higher altitudes they never bothered us long after dark as it then became too cold.

The next morning we rearranged our baggage, prepared to leave all our friends behind and strike into the unknown. We were in plain sight of the mountains and on leaving were directed to pass to the right or left of certain peaks, to go to a certain ranch and take the left hand road or go to the second forks of the road, then turn to the left, etc. Our map of Colorado was at a discount from that day on, for no one would advise us to go according to its directions. We had thought of visiting Estes Park, but after a consultation with people who had been over the ground, decided that Routt County was the only place in Colorado and joined the hegira in that direction; for Routt County is the great grass region of Colorado, and we concluded that game and butterflies should seek similar localities, especially as one must cross the range to Routt County, and the summit suggested *Chionobas*.

With light outfit and good teams, hunters drive into Routt County in three days; but our horses were not Arabs, our outfit was not light and one horse proved a Turk. Just before starting we spent a few minutes pursuing the butterflies which were abundant in our friend's dooryard. Here were taken *Lycæna acmon*, *Phyciodes ismeria*, *Colias eurytheme*, *Pyrgus tessellata*, and another species of *Pyrgus*, *Pholisora catullus*, *D. archippus*, *V. antiopa*, a few wary Odonata and a few hornets. We may as well remark here that, although we frequently had our friends Tough and Prof. Needham in mind, we were unable to capture a single dragonfly during the trip. To be sure, we saw some, but they were wilder and harder to find than any other game we sought except the sage hen.

It was mentioned that we took considerable time rearranging our outfit, and consequently had a late start, but were finally under way followed by the good wishes of our friends, who assured us that there would be many pleasant features of the journey, and that we would especially enjoy the memory when it was all over. This last expression frequently came back to us when we encountered hardships and disappointments on the way. Before starting we made a new brake for the wagon, knowing that sometimes in the mountains everything depends upon the strength of the brake. Toward noon we were in the foothills, and about 4 P.M. entered Mt. Vernon Canon, up which we drove several miles until we found a suitable place for a camp. Here we ended our first day's journey, picketed Bay and Gray, as we had named our animals, and were soon enjoying our first real meal in camp—peas, bacon, coffee, bread, butter and cakes. That evening our appetites arrived to continue with us to the end of the trip. This entry was made in one of the note books: "The new stove is a jewel." It was a mere box of sheet iron with a tiny oven, two holes to cook upon and a tiny fire-box; but the tales it could tell of excellent biscuit, fried trout, roast venison, baked potatoes, and grouse-pie, are enough to make an epicure long for a taste. During this day we had seen a few *Argynnis* and many *E. claudia*. Will, or the taxidermist, as we may as well style him from now on, was constantly seeking new birds and singing out their Latin names, Mrs. S. was always on the lookout for new flowers, many of which were beautiful beyond description; the children were interested in all outdoors, and the fourth member of the party was "bugologist," nimrod, camp tender or idler as the occasion demanded. But we were all out to study nature, and our main regret was that our friends could not enjoy it with us.

As we sat about the campfire that night we recalled what we had seen during the day, the *Antolmis grotei* and *Arg. cipris* that we had seen on some large compositæ; the four line chipmunk which we supposed was *Tamias quadricolatus*, but which the taxidermist recently wrote me, "is probably a new species;" the hummingbird upon her nest in a brier patch that we watched for a time and attempted to photograph. That first night in

the wilds! It was some time before we sank into slumber—broken occasionally by the strange wood noises. About 3 A.M. we awoke shivering. A fire was quickly kindled and it was kept roaring until daylight. We were ready and willing to make an early start, but found that we were unfamiliar with our team, for at the first hill Gray stopped as though never to go again. We argued the case but to no advantage; we unloaded; we unhitched and drove a team without a wagon, then rehitched, but still there was no *go*; we applied a tough persuader. Finally, while we were lamenting the situation and debating the advisability of a slow fire under the sphinx-like creature, a team came from the opposite direction and the driver wished to pass but the road was too narrow. He finally came to our assistance with a long lithe whip and Gray soon moved on once more. We learned that Gray needed, in fact, must have, a down hill pull the first thing in the morning if we wished to avoid trouble. Give him an easy start and he was good for all day, but up a steep incline, just after breakfast, there he put his foot down. The next event of importance was the descent of Floyd's Hill, a feat for which none of our friends or enemies had prepared us; our friends because they did not wish to discourage us; our enemies, because they hoped we would never come back. Imagine, if you can, a rocky hill over a mile in length, every step of which seems the jumping off place, yet as one makes the various turns in the road and looks ahead, the descent is found always to be a little less than 90°. One at the reins and one at the brakes, we finally made it, then took a long breath, remembered that home and friends lay beyond that hill and wondered if there was a way around it. The natives assured us there was not. Like the classic writer who crossed the Rubicon, we passed on but wondered what the *mountains* were, if this was Floyd's *Hill*. We were too busy that day managing brake and reins to do any collecting. If there were insects we failed to see them. This was Saturday and late that evening we went into camp on the banks of Clear Creek, just beyond Idaho Springs. Here we spent Sunday resting and writing to friends. Here we enjoyed our first rainstorm in camp, heard the thunder roll about the rocky peaks

and at night slept the sleep of the tired. Thus we were ready for an early start Monday morning. Our way to Middle Park was through Lawson and Empire City, then on and up over Berthoud's Pass. Distances are ever deceptive in the mountains. One rancher said it was seven miles up and three down. We didn't know how far it was to the summit, but toward evening, after winding slowly along an uphill road since about 9 A.M., we came to a little log cabin and decided to camp and let our horses have the enjoyment of a roof over their heads. On the way up some insects were seen, *Phyciodes*, *Chionobas*, *Melaporphyra*, *Chrys. helloides*, etc. Mosquitos were thick until about 6.30, then the air became too cold. We decided to spend a day or two in this locality and collect on the summit, which we learned was one and one-half miles away. The following morning the taxidermist sallied forth early, armed for conquest, but returned before 9 o'clock with some birds and pine squirrels. Then the "bugologist" started up the trail. Soon *Argynnis helena* were found in abundance and a short distance farther up it was a pleasure to note the erratic flight of a *Chionobas*. Then the pursuit of these wiley mountaineers began and a dozen or more were captured. The identity of these is not yet settled, but they seem to be *uhleri*. On the summit it was cold and windy, too much so for insects except a few *Melitæa*, so the homeward journey soon began. A few *A. eurynome* several *Anthocharis ausonides*, *Pieris venosa* and some *Pamphila* were taken,—seventy specimens in all by 1 o'clock,—including a species of *Chionobas* new to the collector. The mosquitos then had their inning until dark, and the next morning we broke camp and begun the ascent. As the first thing was a pull up hill, Gray was obstinate, and in the midst of the argument the brake broke and came near allowing the wagon to go over the mountain side. We hastily repaired the damage and by 7.30 A.M. were on the summit, over 11,000 feet above sea level and with snow banks near at hand.

(To be Continued.)

MR. H. W. WENZEL has taken in Pennsylvania and New Jersey, upwards of 40 species of Scydmanidæ. Before he became interested in this work there were only about ten species known from this vicinity.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., APRIL, 1901.

Improvements in photographic illustrating in entomology are still being made and will doubtless go on until the method becomes perfect. As we have already said, the one great feature attained is mechanically correct maculation and contour. The color-screen and isochromatic plates give fairly correct color values, even for reds and yellows. By exposing a number of plates a perfect negative may be obtained. If the specimens are pinned on little corks, gummed on glass, shadows may be eliminated.

We often have photographs sent us with large unsightly labels showing. Such labels should always be removed before the photograph is made. The great objection to the three color process at present is the expense, but doubtless the cost will be reduced by competition just as it was in the case of the ordinary half-tone. The NEWS desires to continue to maintain a high standard in this kind of work, as it believes in the great future and value to entomology along this line.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

NICHOLAS KUSNEZOW in speaking of *Libythea celtis* says: "The butterfly in repose exactly resembles a dead leaf, just as many tropical Rhopalocera act, with the famous *Kallima inachis* at the head. The circumstances that *Libythea celtis* makes use of its palpi and antennæ for

simulation of a stalk of a leaf, is very singular, as no tropical "leaf-shaped" butterfly does it. In this respect *L. celtis* is unique. This species inclines forward, stretches its palpi and antennæ, touching with them the leafless twig, and raises the anal angles of the hind wings." It would be interesting to observe whether our species, *Libythea bachmani* has this habit.—H. SKINNER.

THE U. S. National Museum has obtained by purchase the Microlepidoptera of the collection of Anton Schmid and the collection of Dr. Ottmar Hoffmann, with the exception of the Sesiidæ, Psychidæ, Tortricidæ, Tineidæ and Pterophoridæ of Hofmann's collection, which had been sold to Lord Walsingham. The combined collections contain over 15,600 specimens in excellent preservation. All the species are of the European fauna and give the National Museum an excellent representation of that fauna, except in the Sesiidæ and Psychidæ, which were taken from the Hofmann collection and not included in the "Micros" of the Schmid collection. The purchase was made through the kind office of Prof. A. R. Grote, of Hildesheim, Germany. A notice of Anton Schmid will be found in "Berichte des Naturw. Vereines in Regensburg," 1898-1899 and Dr. O. Hofmann in the same journal, and also in the "Illust. Zeitschr. für Ent.," V, 140, 1900.—HARRISON G. DYAR.

Entomological Literature.

COMPILED BY P. P. CALVERT.

Under the above head it is intended to mention papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology will not be noted. Contributions to the anatomy, physiology and embryology of insects, however, relating to American or exotic species, will be recorded. The numbers in **HEAVY-FACED TYPE** refer to the journals, as numbered in the following list, in which the papers are published; * denotes that the paper in question contains descriptions of new North American forms. Titles of all articles in foreign languages are translated into English; usually such articles are written in the same language as the title of the journal containing them, but when such articles are in other languages than English, French, German or Italian, this fact is indicated in brackets.

4. The Canadian Entomologist. London, Ont., March, '01.—**5.** Psyche, Cambridge, Mass., March, '01.—**8.** The Entomologist's Monthly Magazine. London, March, '01.—**11.** The Annals and Magazine of Natural History, London, '01.—**13.** Comptes Rendus. Societe de Biologie, Paris, Feb., 2, '01.—**15.** Biologia Centrali-Americana, parts clx, Dec., '00; clxi, Jan., '01, London. Rec'd. Mar. 14, '01.—**19.** Horæ Societatis Entomologicæ Rossicæ, xxxiii, 1-2; xxxiv, 3-4, St. Petersburg, '00. Rec'd. March, '01.—**21.** The Entomologist's Record, London, February 15, '01.—**22.** Zoologischer Anzeiger, Leipsic, '01.—**37.** Le Naturaliste Canadien, Chicoutimi, Quebec, February, '01.—**38.** Wiener Entomologische

Zeitung, xx, 1-2, Jan. 31, '01.—**55.** Le Naturaliste, Paris, '01.—**67.** Entomologiske Tidskrift, Stockholm, xxi, Haft 1, March 9, '00, Haft 2, Aug. 18, '00, Haft 3-4, Jan. 31, '01. All rec'd. Feb. 23, '01.—**69.** Bolletino, Societa Entomologica Italiana, xxxii, Florence. Tr. 1, May 20, '00: Tr. 2, July 31, '00; Tr. 3, Oct. 31, '00. All rec'd. March, '01.—**81.** Biologisches Centralblatt, Erlangen, Feb. 1, '01.—**84.** Insekten Börse, Leipsic, '01.—**119.** Archiv für Naturgeschichte, lxvii, i, 1. Berlin, Dec., '00. Rec'd. Mar. 13, '01.—**136.** Stettiner Entomologische Zeitung, lxi, 7-12, '00.—**146.** The Entomological Student, Philadelphia, i, 5, Oct., '00; ii, 1 Feb. 15; 2, Mar. 15, '01.—**147.** Proceedings, American Association for the Advancement of Science, 49th meeting at New York, June, '00. Easton, Pa., Dec., '00.

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Doings of Societies.

The fourteenth regular meeting of the Harris Club was held at 35 Court Street, Boston, on the evening of February 15, 1901, Mr. Newcomb presiding. Six new members were elected, namely: Miss Denton, Miss Blount and Miss Wiswell, all of Wellesley, Mass.; Messrs. J. H. Herrick of Hudson, Mass., A. J. Lewis of Boston, and Charles A. Osgood of Newtonville, Mass.

Mr. Bolster opened the discussion of "winter collecting" with an account of methods pursued in collecting Coleoptera,—sifting, examination of ant-hills, bark, etc. Mr. Swett told of a harvest of Ichneumonidæ obtained from a pine stump. Mr. Morse exhibited a series of the Orthoptera which may be found in New England during the winter.

Mr. Lowell told of a water beetle, species undetermined, which has lived in an aquarium for three years. Mr. Rogers described the killing of young turtles by water beetles.

Mr. Harvey Mitchell showed a melanic male of *Colias philodice* from Medford, Mass., and an *Argynnis*, supposed to be *myrina*, from Bryantville, Mass., which displayed excessive development of the silver markings of the under surfaces of the secondaries, the interspaces being solid patches of silver.

Mr. Burrison exhibited some butterflies from Yellowstone Park.

W. L. W. FIELD, *Secretary*.

The regular stated meeting of the Feldman Collecting Social was held March 20, 1901, at the residence of H. W. Wenzel, 1523 South 13th St. Thirteen members present. Visitor, Mr. H. Viereck. President Mr. Charles W. Johnson in the chair.

Professor Smith stated that one of the larvæ of mosquitoes

mentioned at the last meeting had changed to the pupa state on March 17th. He also said that his observations upon mosquitoes were made in winter, while those of Dr. Howard were made in summer and on a different species; this might account for the difference in the conclusions to which they arrived.

Mr. Johnson asked if there was any plant life in the water, and Professor Smith stated that there was quite a good deal of organic matter in the pitcher plant when he collected the mosquitoes, and all of the contents was placed in the water. The water had not become foul on account of the lack of plant life.

Dr. Skinner said that many years ago mosquitoes were considered important factors in keeping water pure, but now they are injurious to man as carriers of disease, and the bad probably overbalances the good they do. He spoke about the relation of yellow fever and mosquitoes, and stated that the period between biting and the appearance of the disease was placed at thirteen days. On account of the time taken for the mosquito to become virulent he thought that the disease might be caused by a protozoan, and not by bacteria.

Mr. Wenzel said that a vessel arrived at this port some years ago with a cargo of rags from an infected district, and the disease was spread through the city.

Dr. Skinner stated that the insects are carried by ships and freight cars to different places, and by biting people would cause yellow fever to appear in districts a long distance from the original source of the disease.

Mr. Johnson stated that it has been proven that some species of mosquitoes carry disease and others do not.

Dr. Skinner said that the water supply of Havana had been made much purer within the last two years, but yellow fever exists as violently as before, and this seems to show that water supplies do not carry the disease as much as has been supposed.

Dr. Skinner exhibited specimens of *Psilidognathus friendii*, a beautiful, large, green longicorn from South America. They came packed in a cigar box with cotton and cut cork, and evidently had not been killed, as the alimentary canal was full of cotton from the head to the latter extremity, from which some

of the cotton protruded. Hunger had evidently caused them to eat the cotton in comparatively large quantities which they could not digest.*

Mr. Fox read a note upon the generic name *Monedula* which had been used for a genus in Ornithology in 1762, and also in Hymenoptera in 1802. As the name used in Ornithology has priority a new one must be used in Hymenoptera, and *Stictia* Illiger, proposed in 1807, was suggested.

A discussion upon priority and pronunciation of scientific names took place and Professor Smith mentioned three names which in England would be pronounced the same way, but on the continent would be given an entirely different pronunciation.

Mr. Johnson spoke about the effect of pith upon insect pins. He received a number of insects from Germany mounted upon pith, and, in looking at the insects recently, found that that part of the pin which had been in the pith was eaten away, and the insects were lying at the bottom of the box. Professor Smith said that if the pith was not perfectly dried it might cause the damage spoken of.

Dr. Skinner asked about the best method of mounting mosquitoes, and Mr. Johnson suggested using small pins or mounting like Coleoptera.

Mr. Børner moved that a vote of thanks be extended to Dr. Skinner for the able manner in which he entertained us at the last meeting.

WILLIAM R. REINICK, *Secretary*.

A meeting of the American Entomological Society was held February 28th, Dr. Philip P. Calvert, President, in the chair. Thirteen persons were present. Mr. H. W. Wenzel exhibited his fine collection of *Lampyridæ*, which contains nearly every described North American species. Dr. Skinner exhibited some agave pith from California, and said it was excellent for lining store boxes and boxes for mailing insects. Mr. Wenzel said an objection to its use for permanent collections was the

* On further examination it seemed likely that the cotton had been artificially introduced from the posterior part of the body.

fact that it corroded the points of the pins. Mr. Johnson said palmetto pith would destroy the ends of pins. Dr. Skinner exhibited specimens mounted according to a method devised by Prof. O. B. Johnson of Seattle, Washington. Dr. Calvert gave an account of a bicycle trip he had made during the summer of '98 to the lake region of the southeastern part of New York State and the adjoining region in Pennsylvania. The time was between July 16th and August 5th; twenty-two ponds being visited in search of Odonata. The collecting in the mountainous parts was not particularly good. The most favorable places were found to be Sawkill Pond near Milford, Pa., and in Sullivan County, N. Y., at De Bruce and White Lake. *Enallagma pollutum* was one of the interesting finds, inasmuch as it had been originally described from Florida and subsequently from Maine. The speaker had also taken it at Clementon, N. J. *Enallagma piscinarium* was taken at Silver Lake near the Gap. The difference between this and *geminatum* was pointed out. The collections made were exhibited and Dr. Calvert spoke favorably of this region as a collecting place for the entomologist.

DR. HENRY SKINNER, *Secretary*.

A regular meeting of the Newark Entomological Society was held Sunday, March 10th, at 3 P. M., at Turn Hall, fifteen members and three visitors being present. President Buchholtz presided. Mr. Luccareni was elected secretary to take the place of Mr. Kemp, who will leave in a few days for an extended collecting trip through Arizona. Mr. Stortz reported the capture of *Panagæus fasciatus* at Springfield, N. J., March 3d. The genus *Arsama* was discussed by the members present, and Messrs. Buchholtz, Reinecker, Halterman and Straub exhibited specimens for comparison.

G. A. LUCCARENI, *Secretary*.

We regret to announce the death of Mr. Frederick Clarkson, of New York, a subscriber to the NEWS, who was interested in general entomology.



AMBLYCORYPHA OBLONGIFOLIA

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AND

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Pink Grasshoppers.

By SAMUEL H. SCUDDER, Cambridge, Mass.

See plate VI.

The insects commonly called grasshoppers by English speaking peoples are separated by naturalists into two great families, in one of which the antennæ are much shorter than the body and moderately thick, while in the other they are longer, often very much longer, than the body, and are exceedingly slender, tapering and thread like.

The former are generally found on the ground and as a rule are of some brown color, while the latter, at least when winged, are commonly confined to trees and bushes and are usually green. There are, however, many exceptions both as to habitat and color. The long-horned or green grasshoppers are usually green throughout, or with the exception of some minute and inconspicuous spots or streaks; but many species exist in two forms, one of which is grass-green, while the other is dead-leaf-brown, there being no difference between them, except in the general tint.

It is to this group of grasshoppers that belong all the noisy tribes of Orthoptera (excepting only the crickets), of which the

katydid is an example, and which stridulate by rubbing together the bases of the fore wings, provided for the purpose with a sort of tambourine, a tense thin membrane stiffened by cross ribs; all these songsters are males, the wings of the females being unprovided with the apparatus necessary to produce a sound. The short-horned grasshoppers stridulate but feebly, and generally by scraping their fore wings with the hind thighs—fiddle fashion.

Very rarely—it has been recorded less than a dozen times—one of these long-horned grasshoppers is found of a violet or pink color instead of green or brown. It occurs only as a rare "sport." A pair of these, belonging to the species known as *Amblycorypha oblongifolia*, are figured on our plate, painted from life, as they were feeding on the flowers of golden rod, which they devour with great zest.

The female with its sabre-like ovipositor is shown above, the male below. The female is of a pale coral red verging on magenta, the abdomen a shade paler, while the male is of an orange red. The tegmina or fore wings of the female are of a very clear color, with scarcely a single fleck of brown, while those of the male are much dotted with brown (at least as compared with what we ordinarily find in this genus) and flecked longitudinally with yellow, while the stridulating field, the tambourine, is almost entirely dull brown, and an obscure patch of the same color, more distinct on one wing than on the other, appears beyond the middle. In both, the palpi are of the color of the body, but the eyes are green and the antennæ luteous, as in normal examples.

This pair of pink grasshoppers was captured at Woods Holl, Mass., at the end of August, 1886, and other specimens were taken during the same month, one so early as the ninth of August. The first example of the sort that I ever saw was a female of another species of the same genus, *Amblycorypha rotundifolia*, taken on Sharp Mt., Pennsylvania, at the end of August, 1878, and sent me by the late Dr. Joseph Leidy. Riley, however, records a pink specimen of *A. oblongifolia* in his Sixth Missouri Report (p. 169), and Johnson speaks of another in Science for 1889, p. 32.

Brunner, in his monograph of the subfamily Phaneropterinae, to which these grasshoppers belong, gives instances of similar sports in other members of the same group, but I cannot learn that the phenomenon is known in Europe, which, however, possesses very few species of Phaneropterinae, excepting such as are short winged, in which it could not appear to such advantage; but the phenomenon is not wholly confined to this group, since an example of it has been found in the true katydid, *Cyrtophyllus perspicillatus*, belonging to a distinct subfamily, Pseudophyllinae, taken at Point Pleasant, New Jersey, 1883, as reported in the proceedings of the Philadelphia Academy by Lewis; and a species allied to it was named *rosaceus* by Stal, on account of the color of the wings in a specimen seen by him from Central America. The Pseudophyllinae are not found in Europe.

I have never heard of this phenomenon in any other subfamily, such, for instance, as the Conocephalinae, where we sometimes find dichromatism—green and brown varieties.

The causes which produce this curious sport among green grasshoppers are wholly unknown. The specimens I saw alive appeared quite healthy and acted in a normal manner. One thinks at once of autumn leaves and their change from green to red, and notices that these grasshopper cases all occur in the autumn, so far as known; but then it is only in the autumn that these insects mature and have their wings, and one of those taken at Woods Holl was found as early as August 9th. Even to the end of August, all residents at Woods Holl in 1886 insisted upon it that they had had no temperature at all approaching the freezing point; and finally what are we to say to Stal's *rosaceus*, taken at Chiriqui in Costa Rica? I leave these questions to the physiologists.

Preservation of Colors in Dragonflies (Odonata).

By E. B. WILLIAMSON.

The following note is offered more as a suggestion than as a statement of any positive results. The experiments were tried with only one species, *Enallagma civile*. At the time I was

unable to obtain other desirable species in numbers sufficient to test the methods. I would suggest that similar experiments on some species of *Sympetrum* and some *Æschna* or *Anax* might yield something of interest in the way of color preservation.

More than two hundred males of *Enallagma civile* were caught one forenoon, and the following conclusions result from treating these specimens in various ways. Mr. D. A. Atkinson, of Pittsburg, has had good results in the preservation of herpetological material by thoroughly hardening in formalin solution and then using a solution of zinc sulphate (Zn SO_4 , 1 pound; H_2O , 3 gals.) for the permanent preserving fluid. This will not do, however, for dragonflies. Thoroughly hardened in 95 per cent. alcohol or 6 per cent. formalin and then placed in zinc sulphate solution they slowly blackened and spoiled. They spoiled more rapidly if placed in the zinc sulphate without previous hardening. Specimens preserved in 6 per cent. formalin, in a few days turned dark obscure reddish. Formalin is, at the best, an unsafe permanent preservative for material of any kind. In glass stoppered jars, sealed with vaseline, it disappears, not, as often stated, by evaporation, but by decomposition. It is valuable in fixing the colors of fishes, salamanders, etc., but even in strong solution does not seem able to set the colors of *Enallagmas*.

Specimens were placed in 95 per cent. alcohol. In this, colors are natural after three months. Specimens were papered after being in alcohol eight days. Color preservation good, shrinkage bad. Specimens papered after one month in alcohol did not shrink any more than those of eight days, but there was some whitening of postocular spots and blue of thorax. Specimens were papered after four hours in benzine. Color preservation good, but the blue of thorax took on a slight violet tinge. After a few hours in benzine specimens soften and the abdominal segments fall apart easily. Specimens hardened in alcohol, then placed two days in benzine, and finally papered had the colors almost perfectly preserved, but with the hint of a white line on either side of the black mid-dorsal stripe. Specimens placed four hours in acetone and then papered also had the colors well preserved, but

with some whitening anteriorly of the antehumeral blue line. Specimens placed in acetone are hardened and do not soften and break up as in benzine. Specimens previously hardened in alcohol do not soften in benzine. Specimens were placed four hours in acetone, eight hours in benzine, and papered. There was no shrinking or breaking, and color preservation was good with the exception of some whitening of the postocular spots and the blue of the thorax. This last method I am especially anxious to see tried with some of the larger species mentioned above. Discoloration of specimens which are allowed to dry without any treatment seems to be due to putrefaction in the course of drying, and later the possible spread of oily matter from the ovaries or alimentary tract. Acetone is miscible in both water and benzine. Specimens taken from the cyanide bottle and placed in it sink at once. A few hours should suffice to replace all the watery fluids of the insects by acetone. Transferred to benzine, the acetone is replaced by benzine, and the fats are dissolved. Taken from benzine the specimens dry almost at once; and the water and fats are thus removed within a few hours. All the specimens treated with alcohol, benzine and acetone, and then papered, were subsequently relaxed in the ordinary way. Hardening by the chemicals did not interfere with pinning and spreading the specimens of this small species for the cabinet.

Notes on *Cychnus*, with the Description of a New Species.

By J. L. WEBB, Pullman, Washington.

Cychnus idahoensis n. sp.—Black, with indistinct bronze lustre; form elongate, rather convex, head moderately elongate, smooth, shining; genæ incised; thorax cordate, slightly wider than long, sides arcuate, oblique posteriorly, with little or no sinuation; pronotum feebly convex, hind angles slightly obtuse; median longitudinal line with the two anterior lines running cephalo-laterad from it, sharply defined; basal impression moderate; lateral longitudinal impressions well defined at base, very faint or obsolete at middle; elytra oval, convex, more attenuate behind than in front, the margins narrowly reflexed, with no trace of green or gold coloring; surface 11 striate, striæ more or less interrupted by the

interspaces running together, especially toward the margins and posteriorly; body beneath smooth and shining. Length 11.5-13.3 mm.

Male with joints 1-3 of anterior tarsi spongy pubescent beneath.

This species is related to *C. marginatus* Fisch., which it closely resembles in form. It presents, however, the following differences from that species, viz: pronotum less suddenly narrowed behind with less evidence of sinuation, having the two lateral longitudinal lines less well defined; margins narrower and less strongly reflexed; the elytra are slightly more convex with narrower margins, the latter having no trace of green or gold coloring; the striae are interrupted by the interspaces running together forming lacunæ, rather than the interspaces being interrupted by punctuation; 11 specimens collected by myself on Cedar Mountain, Latah County, Idaho, and 3 at Collins, Idaho, 8 males and 6 females.

The types are deposited in the collection of the Washington Agricultural College, and duplicates will be sent to the National Museum and American Entomological Society.

During the past two or three years I have collected quite a number of specimens of *Cychrus relictus* and *regularis* on Cedar Mountain, Idaho. *C. relictus* has also been collected at Spokane and Pullman, and *C. regularis* at Wawawai, Washington, by Prof. C. V. Piper.

Relictus was described by Dr. Horn from a single male specimen collected at Spokane, Washington, by Mr. Ricksecker (Trans. Am. Ent. Soc., vol. ix, p. 188).

Regularis was described from a single pair also collected by Mr. Ricksecker in the Cœur d'Aléne Mountains, Idaho (Tr. Am. Ent. Soc., vol. xii, p. 2). In his description of this species LeConte says:

"Black, not very shining, of the same form and sculpture as *C. relictus*, except on the elytra, which have twelve perfectly regular and entire impressed punctured striae; the 13th is composed of separate punctures confused with the marginal ones; the interspaces are somewhat wider than the striae, the 4th and 8th are interrupted by only 3 or 4 punctures."

I have made a close examination of a number of specimens of *regularis*, and I find apparently all gradations between *regularis* and *relictus*. I have four specimens of *relictus* from Spokane, the type locality of this species, and have examined 51

specimens of *regularis*, but give here a description of the variations from the typical form of only 10. The specimens are numbered consecutively, and are otherwise typical.

1. Right elytron with six interruptions on the 8th interval.
2. Right elytron with five interruptions on 4th interval and six on 8th ; left with seven on 8th and two on 9th.
3. Right elytron with 9th stria interrupted, left with 12th interval but once.
4. Punctures on 4th and 8th intervals very faint.
5. Right elytron having 7th and 9th intervals interrupted once, left having 4th and 5th striæ run together and confused.
6. Right elytron having 4th and 8th intervals with very faint indication of interruptions, left having 4th interval not entirely interrupted in any one place and 8th with only faint indication.
7. Left elytron without interruption on 4th interval ; striæ on both elytra toward the margins confused.
8. Left elytron with eight interruptions on 8th interval ; right with seven on 4th, and eight on 8th ; 6th interval wavy and punctured.
9. Right elytron with five interruptions on 4th interval, seven on 8th, and four on 11th, 9th and 10th run together in some places ; left with six on 4th, and having striæ somewhat confused toward the margin and posteriorly.
10. Right elytron with six interruptions on 4th interval, seven on 8th, and three on 11th ; left with six on 4th, eight on 8th, and one on 11th.

Also, the Spokane specimens of *relictus* show some tendency toward regular striation on the elytra, two or three striæ on one or two specimens being moderately straight.

One specimen from Cedar Mountain shows the characters of both species to such an extent that it is impossible to say definitely whether it is *relictus* or *regularis*.

This shows quite clearly that the differences between *relictus* and *regularis* are not so constant as the types seemed to show.

It appears to me, after making an extended examination, that in extreme *regularis* the interspaces between the striæ have their sides perfectly smooth and straight, and that in the

specimens which seem to be intermediate between *regularis* and *relictus*, the interspaces become more and more wavy, until the striae are no longer regular and entire, but broken up as in *relictus*.

The following might be suggested as a revised description of *regularis*: Form and general appearance of *C. relictus*, except on the elytra which have 12 impressed punctured striae, generally regular and entire. The thirteenth is composed of separate punctures confused with the marginal ones; interspaces somewhat wider than the striae, the fourth and eighth being generally interrupted by from four to eight punctures, and one or two interruptions occasionally occurring on one or more of the other interspaces, especially on the 7th, 9th and 11th.

A New Method for Permanently Mounting Insects.

By Prof. O. B. JOHNSON, Seattle, Wash.

To the Brethren of the Net!

Just a few words about a new method of permanent mounting for insects that I have been experimenting with and that seems valuable. It consists of a box or case made in two parts with pasteboard sides or rim, and with top and bottom of glass. These glasses are both of the same size, the bottom one fitting flush with the outside of the rim, while the top one fits inside the cover rim, so that the two parts "telescope" together. These cases are $\frac{1}{2}$ inch deep inside, and of sizes increasing in length by inches from 3 to 12, and in width by $\frac{1}{4}$ inches from $1\frac{1}{2}$ to any width desired. These sizes are easily fitted into 12 or 18 inch drawers of $\frac{3}{4}$ or 1 inch depth—thus in the 12 it takes 1, 12; 2, 6^s; 3, 4^s; 4, 3^s or 9 + 3, 8 + 4, 7 + 5. The insects are mounted in the conventional position, ♂ + ♀ side by side in the same case on a short piece of oo pin inserted in the usual manner into the thorax, only from the underside. This pin in turn is inserted into a bit of cork that is finally fastened to the bottom glass by a touch of Le Page glue. These cases can be made by any box factory, just what the cost would be will depend upon the place,

I suppose, or collectors can make them themselves, which I do, but I have more time than most folks, being confined to the house. Well, after having the case, to mount the insect, first relax thoroughly, then expand upside down on the ordinary setting board, only made perfectly horizontal, in the usual manner. When dry place them still upside down on a strip of smooth cork, and after extracting the pin from the thorax, used in setting, replace it with a piece cut from an o or oo pin $\frac{1}{2}$ inch long dipped in mucilage, being careful not to let it project clear through, and also to have it stand vertical in drying, during which it is well to replace the glass weights used in expanding over the wings. Now take a sheet of $\frac{1}{8}$ inch fine quality cork and cut cubes $\frac{1}{8}$ inch, thrust a setting needle through one side, and with a very sharp knife slope off the corners diagonally, making a cone shape with a hole through, into this hole press the outer end of the short pin, now well dried; first dipping it in mucilage. Now place the specimen, still upside down, in the bottom portion of the case, and with a strip of glass long enough to reach across the sides, adjust the cork by sliding it up and down on the pin until it will just touch the underside of the glass, of course, if the pin touches the glass it must be cut down before adjusting the cork, which if the pin was vertical and the hole through the cork perpendicular with the surface, it will now touch evenly, if not, must be trimmed with the knife until it does. This having been done to the pair, place them as you wish them to appear, still upside down, on any smooth and level surface, clean the inside of the bottom glass thoroughly, touch a very small bit of the glue with a setting needle to the bits of cork and invert the box, dropping it gently down until the glue touches. If all has been done correctly it will rest evenly all around the edge and the specimen will not be displaced; if so, let it dry an hour, clean the cover glass, "telescope" it on, label and put away and your mount will have these advantages.

1st. The conventional position ♂ and ♀ side by side is retained.

2nd. The insect is held entirely by one pin in the thorax as usual.

3rd. All of the essential and desirable features of the "block system" obtained, thus avoiding the tedious repinning for accessions.

4th. The nonnecessity for a double series of each species to exhibit the underside, every example is available by simply turning over the case.

5th. All dangers of moisture, drafts, coughing, sleeves, pencil points, dropping eye-glasses, dust, and insects are avoided.

6th. Labels and data are inseparable from the insects, especially desirable in types.

7th. Easily examined with a hand lens above and below.

8th. Material can be passed around during a lecture or meeting without fear of injury, or loaned to your friend and fellow enthusiast, the kindergarten teacher or otherwise made to serve a much wider field—for if a collection is not educational it is senseless.

9th. As to the cost each one can figure that out for their own locality and condition, and if I have omitted anything I will cheerfully answer all inquires.

O. B. JOHNSON, 610 Pike Street, Seattle, Wash.

Letters from Thomas Say to John F. Melsheimer, 1816-1825.—III.

Philad^a. July 30th 1816

Dear Sir

I have sent you p^r James Griffith, Baltimore the following Insects that I hope may meet your acceptance, it is true their number is very limited but they may possibly interest you being foreigners—the names of some of them may be wrong as I have not the chance of reference to many books, if they are so please to correct me—

Scarabæus Lin. *Molossus*—*Pithecius*—*Indicus* & *Cinctus* of India *Tityus* of Maryland—*Curculio Imperialis*—*Splendens* of South America & *Squamulosus* of India—*Buprestis vittata* of India—*Elater noctilucus* of Jamaica (this insect was presented to me alive, its light was very vivid) I cannot determine the species of *Chrysomela* of South America *Meloe* (Mylabris) *Bifas-*

ciata—*Gryllus roseus*—India—*Tettigonia atrata*—India (I do not think that our common noisy *Tettigonia* has ever been described, it cannot certainly be the *Tibicen*, its very obvious distinctive characteristic, the white spots could not have been overlooked) *Cimex Sinensis* of India *Cimex* ^(scutellera Latr) _{Tetyra Fab} *Stockerus* of India—*Fulgora Candelaria* India *Nepa Fusca* of India—*Papilio*—*Almana* & Nos 2. 3. 4. India *Argante*—*Sara*—*Phyllis* & No 1. South America—*Orithya Leucothoe*—India *Libellula Ferrugenia*—of India—*Vespa bicolor*. *Cincta* India the names of those alluded to by the above numbers, I could not ascertain by Lin's short descriptions as translated by Turton, the only general work on Entom^y. I have in my possession—probably you may know them—*Dytiscus limbatus* of India, I have not seen the American species, but should much doubt from some circumstances of their being the same, but you can now determine by comparison—

I do not see the necessity of removing 294 from the *Ips*, its characters for the most part seem to agree pretty well with that genus; at any rate I hardly think it can be placed with the *G. Triplax* inasmuch as the Palpi are not hatchet shaped—

In examining those I have of the *Ips*, I found that 291 differed considerably in its generic characters from the others, I allude more particularly to its Palpi, perhaps it would be more correct to place it in the genus *Erotylus* of Latr., though it may bear considerable affinity with *Tritoma* & *Triplax*.

The Insect 708 does not appear to me to be altogether at home in the Genus *Clerus*—I think it ought to be transplanted in company with Nos 116 & 117 to Latreilles Genus *Necrobia*—is 708 found on dead animals?

One of the characters of *Anobium Pertinax* is "Elytra with 8 striæ of minute excavated punctures"—No 164 has 10 striæ on the Elytra besides an abbreviated one each side the scutel, taking this difference into consideration with your observations on the thorax & magnitude of our Insect when compared with *Pertinax* I perfectly agree with you as to the necessity of adapting a new name to our insect—

With the Genus *Hyphydrus* I am totally unacquainted, but the *Dytiscus maculatus* of your catalogue most certainly belongs

to the Genus *Haliphus* of Latreille it is so strongly characterized as not to be mistaken—These two Genera *Hyphydrus* & *Haliphus* perhaps are the same but of different Authors?

I have not been so fortunate as to obtain another specimen of the *Diopsis* though I have hunted faithfully, it appears to be a rare insect, and I have no doubt different from Illiger's insect the description of which you were so good as to extract for me; yet like that it may be characterised "*Nigra, alis fascia etc*" but in the details it appears to differ—I have thought to name it *brevicornis* as the peduncles of the eyes are not longer than the distance between their bases, they are brown—head, posterior spines, & feet pale yellow—poisers white, Thorax brownish black, lateral spines & abdomen black—Fore thighs very much thickened & with the shanks brown but the joints are pale yellow—its length is 2 lines—I found it on the Swamp Cabbage (*Pothos foetida*)—May—

When I had the pleasure to be at your house, amongst the very interesting insects you shewed me one (of which you had several specimens) that you thought was a new genus—it is an elongated cylindrical insect—that which I take to be the male is black, with a reddish thorax and black dorsal stripe—(Linné would have placed it with *Tenebrio*) In looking over a neglected draw[er] in my cabinet today I found a couple of specimens of it & upon examining them but without dissection, I concluded that it approached nearest to the Genus *Languria* of Latreille & might be placed there but for its palpi which are not filiform,—Elytra very dark green approaching black—general colour of the female rather lighter.

On the lid of the box within you will find two plates of Insects intended for my American Entomology they are all to be coloured—I send you the plate of *G. Tityus* as the first one that I have had coloured you will therefore not criticise it with too much severity as the artist is young & will improve I have the satisfaction to see in this first attempt that the thing is practicable in this country, which has been heretofore much doubted—The plate of *Papilio Philenor* will exhibit the style of engraving which however is entirely obscured by the colour when it is laid on & therefor need not be very fine its principle

service seems to be to direct the colourers I intend to send you an impression of each plate coll^d is they are produced—

I have a great many remarks to make on Insects in my possession either rec^d from your Father or of my own collection with which I shall trouble you in future communications in the mean time those contained in this letter are respectfully submitted to your consideration and decision

I remain Affectionately

Your Obdt Servt

Thomas Say

N. B. I had forgotten to say that there is also in the box a *Cicindela* which as it is not found in the immediate vicinity of this City I thought it might be rare with you—I found it in great plenty on the sea shore two or three years ago & have met with it in sandy parts of the Jerseys—

T. S.

I cannot see Latreille's reason for altering the Fabrician Genus *Geotrupes* it appears according to him that the true Fabrician *Scarabæi* such as your 14, 15, 16 are *Geotrupes*—& of the Fabrician *Geotrupes* he makes *Scarabæi*, is this owing to caprice, or is it to puzzle the student, I feel strongly inclined to adhere in this instance to Fab:—

I would thank you to let me know the title of the book in which Professor Knock¹ describes all those Insects marked K in your Catalogue—

Over the Range in a Wagon.

By PROF. and MRS. A. J. SNYDER.

(Continued from page 113, Vol. XII.)

On the way down from the Pass the insect fauna soon changed. We saw more large *Argynnis*, *Colias* and *Lycæna*. The road lay through almost interminable pine forests, and gradually descended until finally we came out into Middle Park. This portion of country for a few miles was park-like, but of the remainder the name seemed a misnomer. After passing "Idlewild," where we saw fine skins of a mountain lion and a huge bear, we passed Fraser P. O. and store, and then the road for

¹ Knock.—W. J. F.

two or three miles lay between fine hay ranches. Fortunately, we had made the acquaintance of a teamster at the cabin near the Pass, and when we entered the Park he met us and told us where to find good fishing grounds. Some four or five miles within the Park we came again to hilly country and soon turned from the main road into a lane, and after a mile or two of indescribable roads interspersed with bridges that no eastern horse would step upon, we came to the banks of the Fraser River. Here we camped in the midst of such excellent pasture land and amidst scenery of such surpassing beauty, that we forgave the roads, bridges and everything else that had been unpleasant. Along the road we saw *Parnassius smintheus*, *Satyrus charon*, *Cænonympha* and several *Pieris*. We were in camp early and prepared reels and rods for a try at the trout, but they were too shy to make our acquaintance. A friendly rancher, however, supplied us with enough for supper and gave us hints sufficient to enable us to catch some of the speckled beauties the next day. All through Middle Park and to the northwest the fishing is good at all times and the catching excellent—when the contrary trout will bite. We never had many in camp at one time but often all we could eat. The one bait which they could seldom resist was a live grasshopper, and we soon fell into the habit of collecting hoppers while hunting, and confining them in brass shotgun cartridges by placing a wad over them until needed. Few insects were to be found near our camp here. *Arg. eurynome*, *P. smintheus*, *Pam. sylvanoides* and *Cænonympha* were fairly common and a roving *Plusia* could be taken now and then. Even at this date it was becoming so dry that insects were scarce.

July 21st, we left Fraser River and took the stage road to Coulter. Just before reaching this post-office we saw the first covey of grouse. It was near this place that the only sage hen observed during the trip was seen skulking into the sage brush. *Satyrus charon* and *Lycæna heteronea* were abundant. Will. caught a beautiful aberration of *P. smintheus*, and we saw a few *Argynnis*. The high altitude had been too much for the youngest of the party, so we omitted an intended side trip to Grand Lake, and hurried on to Sulphur Springs and the only doctor for miles around. Merely stopping in town long enough

for medicine, we proceeded on our way through the canon of the Grand in search of a good camping ground. This canon is very beautiful but unpleasantly dangerous to one unused to wild roads. The single narrow wagon road winds along at the base of mountains which are almost or quite perpendicular, while immediately below, on the other side, roar and tumble the green waters of the Grand River. It is over three miles in length, and until one becomes used to its wildness there is more of fear than pleasure in such a ride. Here we met a team on a spot too narrow to permit a very safe passage. It was necessary to lift one wagon over against the mountain and then hold the other steady while its team crawled past. We found one of the exciting experiences of mountain travel to be the watching for places wide enough for teams to pass and the exercising of such care that we would not be caught in a narrow place. Usually, one constituted himself a forerunner and signalled back when another team was found approaching.

We were relieved when we were out of the canon in safety, and as darkness was coming on rapidly we hastily selected a place for a camp and arranged things for the night. Here we spent a week awaiting the arrival of friends who were expected to join the party but who failed to meet us. Gooseberries were along the river and were as delicious as cultivated ones, either in pies or stewed. The grouse frequently came for the grouse berries which were plentiful. The trout would bite at times—always enough to encourage us to keep on trying—and many birds came to the trees, while the taxidermist found trapping for small rodents not unprofitable. In the sage brush *Pseudohazis hera* were flitting, but hard to catch, and on the mountains above us were many *Melitæa minuta* and *Hipparchia dionysius*. But here, as on the Fraser, the drouth seemed to have very materially lessened the insect life. Almost daily, clouds and winds would arise about 1 o'clock and almost carry away tent and provisions, while it blew sand and dust into our eatables. In spite of all, however, *Satyris charon* was everywhere so abundantly omnipresent that it fairly became tiresome to see it and seldom another species. During a walk to Sulphur Springs, in hope of receiving mail, a few good specimens were taken, among them *Chrysophanus virginiensis*.

July 27th we began preparations to leave camp on the Grand, and on the morning of the 28th were "hitting the trail" shortly after seven o'clock, and along a good road. For some miles we followed the general course of the Grand, more frequently than otherwise being compelled to turn out and climb some steep hill because some rancher must have all the grass land near the stream and also wanted all the land the law would allow; so had also fenced in a few hundred acres of sage brush and barren land that could never be of any possible use to him. We were frequently annoyed by the necessity of traveling miles around such an enclosure when to have permitted a wagon road near the edge of the stream would not have injured the rancher's usable land. One is surprised to find that every foot of land in this and most sections of Colorado visited, except in Routt, Co., seems to have been preempted; provided, always, that there is a possibility of irrigating without any serious effort.

Most of this day's drive was through the everlasting sage brush, Troublesome is the first village on the way and there we found ten houses including barns and one post-office. From this station to Kremmling the country varies little, but there are some beautiful hay ranches along the river. Beyond Kremmling one enters almost at once the foot-hills of the Gores Range, leaves the Grand on the left and enters a desert of alkali with sage brush and grease-wood. Toward evening we came to a little ranch up in the mountains, an Eden in the wilderness, seemingly, where a rancher had utilized the water from several springs to such advantage that he had an excellent garden and an abundance of hay. Here we bought hay and went into camp for Sunday. Along the road from Kremmling, *Cleome* was abundant, and always on its blossoms were numerous *Pamphila*. Few other insects were seen, except now and then a white *Pseudohazis* flitting through the sage too warily to be taken.

It was during this day's drive that we stopped the team while Will attempted to shoot a rare bird. The gun snapped several times but no report followed. On his return to the wagon we wondered why our shot gun, never known to miss fire before, should have failed him; until he finally acknow-

ledged that he had been attempting to shoot one of the sheels that we had loaded with grasshoppers to use as bait for trout.

The ranch near which we camped is the old Jones Ranch, now owned by a Mr. Draper, who, by combining several occupations, is able to make a good living in the midst of a desert. Living with Mr. Draper at this ranch was a most interesting personage, Mr. A. J. Reynolds. Mr. Reynolds is almost entirely deaf, so that it was difficult to question him; but once started, it was easy for him to relate anecdote after anecdote concerning frontier life in the Northwest. We gained many facts concerning his life, including a romance that would well serve as the basis of a thrilling story of life in the West in early days. Suffice it here to say that Mr. Reynolds never married but became a wanderer in that vast wilderness and played a noble part in its preparation for civilized life. He came into the Northwest in '43 with the first emigrant train that crossed with wagons to Oregon. This was shortly after Dr. Marcus Whitman crossed the plains, and he helped to bury Dr. Whitman and Mrs. Whitman in '47. He was one of the party that pursued the Indians who had taken all the other women prisoners; helped recapture them and killed one of the leading chiefs. All the following winter he and sixty others fought the Indians and came near starving to death, for most of the time there was nothing but horse flesh to eat.

The Indian story of the cause of the murdering of Dr. and Mrs. Whitman is that the whites gave the Indians the measles. The Indian method of curing disease was to steam themselves over heated stones placed in water, then to jump immediately into cold river water. When those afflicted with the measles tried this remedy they died, and a priest told them that the medicine that Dr. Whitman gave them was poisoning them, then they killed Dr. and Mrs. Whitman in revenge.

For a number of years Mr. Reynolds was a guide to the Yellowstone Park regions and he knew that country and Montana perfectly. He acted as Hayden's guide in his survey of the Park and told anecdotes of Hayden. During one of the last, probably the last Indian trouble in that region, he and three others were attacked in the Park by the Nez Percés. He owed

his life to a slight incident. He had been leading the party all day, but on coming to where the trail forked his companions insisted on taking the road to the right, while he wished to turn to the left. They started on without him and were some distance ahead when the Indians fired upon them and the three companions were killed. His horse was shot from under him, and in falling on him crushed his left leg. He then crawled to a rocky ledge and defended himself until dark, then crawled to the road, and with the aid of a stick made his way back to the ranch-house which he found in flames. He remained in hiding for a time, then found eggs and potatoes for food. Meantime the broken leg had swollen and become very painful. The next morning he saw a cloud of dust and supposed a band of Indians to be coming. He started toward the rocky ledge lining the Yellowstone determined to sell his life as dearly as possible, when he discovered the dust to be caused by a band of soldiers under General Steptoe—he was not quite positive of this name—but, wounded as he was, he was taken along to guide the soldiers in the pursuit of the Indians, while an army surgeon gave such relief as was possible.

Mr. Reynolds also accompanied and aided Captain Drannan in the recapture of Olive Oatman who had been captured by the Mohave Indians. He was also one of the party of English and Americans who surveyed the northwest boundary of the United States. At the time of the Custer massacre he and five companions were prospecting on a mountain near the battle and heard the firing. Next day he and a man named Clark came down the mountain and found Custer and the dead soldiers. He had known Custer and recognized him at once. He and Clark then met Reno and guided him to the scene of Custer's death.

Mr. Reynolds stated that in all his travels he has never found an Indian tribe without its Catholic priest. He is now almost seventy-six years old and feels that his usefulness is past. In his own words, "he is too sore and stiff to travel as he would like to do." When we left him on the following morning he told us all about the country we expected to visit and gave us explicit directions. On showing him a Rand-

McNally map of the country, and asking him to mark out the road on that he said: "Oh, put that away! Do you know how them maps are made? Some eastern college fellows come out here and they travel along until they come to a stream. After they cross it they dismount and say, 'what is the name of this river?' Then they sit down and draw a crooked line the way they imagine it flows and call that a map of the country. If they find a stream that has no name they give it their own and go on." No one in that country used maps and we soon discarded our own, for we found that in this matter, at least, Mr. Reynolds was right. No map that we have seen correctly portrays Routt County.

We have related these stories as they were written that evening in our notes, and the reader of history may prove them true or false. Prosperity has smiled sufficiently upon Mr. Reynolds that he might spend the last days of his life in town and in comfort, but the romance of his life made him a wanderer, and he will draw his parting breath among the mountains and away from the common paths of men. He sat on the porch of that little cabin and waved us a farewell, then turned to look out upon the mountains where more than a hundred head of fine horses which he owned were grazing. We saw him again on our return, and he smiled a smile of satisfaction when we told him that we had found everything as he had said in the country beyond. We again bade him farewell, regretting that we could not learn more of his eventful life and give something of his knowledge to the historians. Many times since then my mind has gone back to that lonely figure with its head bowed at times over a cane, yet erect and straight as the northern pine when he stood to bid us God speed. 'Tis a lonely figure in the wilderness, a simple, faithful being upon whom sorrow fell in youth, but failed to embitter and who has traveled on during almost eighty years faithfully doing service on the frontier. I see him now calmly awaiting the summons of the death angel, a pathetic figure about whose mystic life a worthy pen might weave tales equaling those Cooper related of the times when the East was a frontier similar to the one Mr. Reynolds found in the West in his youth.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., MAY, 1901.

Now is the time that we again think about living insects, and there are certain thoughts that arise in connection with the work of collecting that are very important. When you catch your insects don't put them away in cigar boxes without data and depend on your memory to supply the facts when you wish to use the specimens. The chances are that when you next open the box the specimens will be infested by *Anthrenus* and you will have forgotten the data. Get a supply of pin labels, like those supplied by Mr. Nell, and put one on each pin at once. We are sorry to say there are some entomologists who think a State label is sufficient—we hope for their reformation. Make your papers to contain Lepidoptera symmetrical; cut off the little turnover triangles and always iron the papers before using. If you put pin numbers on your specimens have them very small and preferably printed. We have had specimens sent here with numbers on the pin one inch in length; they had been cut from a calendar. Mount your specimens the same height on the pin, and in the Lepidoptera pin the abdomen on the same plane with the thorax and don't let it sag down any old way and point east or west. Pin the antennæ on the same plane and parallel to the costa and don't have them "boxing the compass." These are small matters but important, so heed them.

Entomological Literature.

COMPILED BY P. P. CALVERT.

Under the above head it is intended to mention papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology will not be noted. Contributions to the anatomy, physiology and embryology of insects, however, relating to American or exotic species, will be recorded. The numbers in **HEAVY-FACED TYPE** refer to the journals, as numbered in the following list, in which the papers are published; * denotes that the paper in question contains descriptions of new North American forms. Titles of all articles in foreign languages are translated into English; usually such articles are written in the same language as the title of the journal containing them, but when such articles are in other languages than English, French, German or Italian, this fact is indicated in brackets.

4. The Canadian Entomologist, London, Ont., April, '01.—**5.** Psyche, Cambridge, Mass., April '01.—**8.** The Entomologist's Monthly Magazine, London, April, '01.—**9.** The Entomologist, London, March, '01.—**12.** Comptes Rendus. L'Academie des Sciences, Paris, '01.—**21.** The Entomologist's Record, London, March 15, '01.—**35.** Annales, Société Entomologique de Belgique, Brussels, '01.—**40.** Societas Entomologica, Zürich-Hottingen, '01.—**58.** Revista Chilena de Historia Natural, Valparaiso, Jan., '01.—**75.** 31st Annual Report, Entomological Society of Ontario, Toronto, '01.—**81.** Biologisches Centralblatt, Erlangen, Mar. 15, '01.—**84.** Insekten-Börse, Leipsic, '01.—**101.** Rovartani Lapok, Budapest, '01.—**104.** Mittheilungen, Naturhistorisches-Museum zu Hamburg, xvii, 2, Beiheft, Dec. 28, '00.—**105.** Videnskabelige Meddelelser fra den naturhistoriske Forening, 1900, Copenhagen.—**146.** The Entomological Student, Philadelphia, April 15, '01.—**148.** Bulletins, New York Agric. Exper. Station, Geneva, N. Y., Dec., '00.—**149.** Anatomischer Anzeiger, Jena, Feb. 23, '01.

THE GENERAL SUBJECT.—**B[urr], M.** Auguste de Bormans, portrait, **21.**—**Csiki, E.** On the insectophobos [apparatus for collecting microcoleoptera; in Magyar, German summary], figs., **101**, Feb.—**Gauckler, H.** The new arrangement of the insect collection in the grand-ducal cabinet of natural history at Karlsruhe in Baden, **84**, Mar. 21, 28.—**Imhof, O. E.** Ocelli of insects, **81.**—**Krecsy, B.** Entomological instruction in America [at Amherst, Mass.; in Magyar], **101**, Feb.—**Lameere, A.** The death of Baron de Selys-Longchamps, **35**, xlv, 13, Feb. 27.—**Lécaillon, A.** On the various cells of the ovary which take part in the formation of the eggs of insects, **12**, Mar. 4.—**Lochhead, W.** Nature study lessons on the squash bug (*Anasa tristis*), figs., **75.**—**S.** Dr. O. Staudinger [biography, bibliography], portrait, Deutsche Entomologische Zeitschrift, Iris, Dresden, 1901, Zweites Lepidopterologisches Heft, Feb. 20, '01.

ECONOMIC ENTOMOLOGY.—**Austen, E. E.** The life-history of warble-flies, **8.**—**Cockerell, T. D. A.** A new plant-louse injuring strawberry plants in Arizona,* **4.**—**Corbett, E. L.** Spraying:

results of the season, 1900, figs., Bulletin 70, West Virginia Agric. Exper. Station, Morgantown, W. Va., Nov., '00.—**Dearnness, J.** A parasite of the San José scale [*Tyroglyphus* sp.], **75**.—**Fielding-Ould, R.** Malaria and its prevention, Nature, London, Mar. 21, '01.—**Fisher, G. E.** et al. San José scale discussion, **75**.—**Fyles, T. W.** Annual address of the President [Insects beneficial to vegetation], **75**.—**Lemaire.** Note on the tsétsé fly, Bulletin, Société royale de Géographie d'Anvers, xxiv, 4, '01.—**Lochhead, W.** A plea for the systematic and economic study of the forest insects of Ontario, figs., **75**; The silkworm industry in Ontario, **75**; The present status of the San José scale in Ontario, **75**.—**v. Röder, V.** On the biology of the fly *Hypoderma bovis* Dec., **84**, Apr. 4.—**Schaufuss, C.** Two Diptera injurious to roses, **84**, Mar. 28.—**Sirrinc, F. A.** A little known asparagus pest [*Agromyza simplex* Loew], figs., **148**, No. 189.—**Smith, J. B.** Two strawberry pests, 2 pls., Bulletin 149, New Jersey Agric. Exper. Stations, New Brunswick, N. J., Feb., 27, '01.—**Van Slyke, L. L.**, and **Andrews, W. H.** Report on analyses of Paris Green and other insecticides in 1900, **148**, No. 190.—**Webster, F. M.** Results of some experiments in protecting apples from the attacks of the second brood of codlin moth, **75**; Results of some applications of crude petroleum to orchard trees, **75**; Notes on two longicorn beetles affecting growing nursery stock, figs., **75**, and also in Journal, Columbus Horticultural Society, xv, 4, Columbus, Ohio, Dec., '00; The San José scale problem as compared with the orange scale problem, Science, New York, Mar. 29, '01; Report of the Committee on Entomology [strawberry insects, use of crude petroleum in orchards], 8 pls., Ohio Horticultural Report, 1900. [Place of publication not given].—**Wilcox, E. V.** Abstracts of recent papers, Experiment Station Record, xii, 7, 8, Washington, '01.—**Cox, D. G.**, **Evans, J. D.**, **Fletcher, J.**, **Gregon, P. B.**, **Johnston, J.**, **Lochhead, W.**, **Moffat, J. A.**, **Rennie, R. W.** [Papers on insects of 1900 in Canada, figs.], **75**.

ARACHNIDA.—**Dearnness, J.** See Economic Entomology.—**Peckham, G. W.**, and **E. G.** Spiders of the Phidippus group of the family Attidæ,* 6 pls., Transactions, Wisconsin Academy of Sciences, Arts and Letters, xiii, pt. 1, Madison, '01.—**Pocock, R. I.** The Scottish Silurian scorpion, 1 pl., Quarterly Journal of Microscopical Science, No. 174, London, Mar., '01.—**Rostrup, S.** Greenland Phytoidæ,* 1 pl. [in Danish], **105**.—**Simon, E.** List of the Arachnida collected by M. C. E. Porter in 1899 at Quilpué and at Molle, and by M. B. Wilson in April, 1900, at Rio Aysen (western Patagonia), **58**.

MYRIOPODA.—**Meves, F.**, and **v. Korff, K.** To knowledge of cell-division in myriopods, 5 figs., 1 pl. Archiv für mikroskopische Anatomie u. Entwicklungsgeschichte, lvii, 3, Bonn, Feb. 25, '01.

ORTHOPTERA.—**Caudell, A. N.** On some Arizona Acridiidae,* **4**.—**Faxon, W.** The habits and notes of the New England species of *Ceanthus*, **5**.—**d'Herculais, J. K.** The great American migratory Acridian (*Schistocerca americana* Drury); migrations and area of geo-

graphic distribution, **12**, Mar. 25, '01.—**Packard, A. S.** Occurrence of *Melanophus extremus* in Northern Labrador, **5**.—**Rehn, J. A. G.** The Linnean genus *Gryllus*, **4**.—**Scudder, S. H.** The species of *Diapheromera* (Phasmidæ) found in the United States and Canada,* **5**.

NEUROPTERA.—**Davis, W. T.** Additions to our local fauna and flora [Staten Island Lepidoptera, Odonata], Proceedings, Natural Science Association of Staten Island, viii, 3.—**Fyles, T. W.** The dragonflies of the province of Quebec, figs., **75**.—**Hine, J. S.** A review of the Panorpidæ of America north of Mexico, 3 pls. Bulletin of Scientific Laboratories of Denison University, xi, Granville, Ohio, Feb., '01. Also as Ohio State University Bulletin, v, 7, Columbus, O.—**Mof-fat, J. A.** Parasites in the eggs of *Chrysopa*, figs., **75**.

HEMIPTERA.—**Cockerell, T. D. A.** Notes on some Coccidæ of the earlier writers, **9**; See also Economic Entomology.*—**Horvath, G.** On the abdominal tubes of plantlice [as means of defense; in Magyar, German summary], **101**, Feb.—**King, G. B.** *Lecanium Websteri* Ckll. and King, n. sp., with notes on allied forms,* **4**.—**Newstead, R.** Observations on Coccidæ, No. 19, figs., **8**.—**Reed, E. C.** Synopsis of the Hemiptera of Chile (cont.), **58**.

COLEOPTERA.—**Barrett, O. W.** See Lepidoptera.—**Belon, Pere.** The genus *Cortilena* Motsch. (Lathridiidae) and synopsis of the species now known, **35**, xlv, 2, Mar. 23.—**Dury, C.** A new Calandrid from Cincinnati, Ohio,* fig., Journal, Cincinnati Society of Natural History, xix, 8, Mar. 27, '01.—**Fenyès, B.** A giant Bostrychid [*Dinapate Wrightii*; in Magyar], **101**, January.—**Fliche, P.** On a fossil insect [Coleopter] found in the Trias of Lorraine, **12**, Mar. 11.—**Gregson, P. B.** Habits of the larvæ of *Dermestes talpinus* (Mann.), figs., **75**.—**Jacobson, G.** Interesting case of mimicry among Russian Coleoptera [in Russian], Annuaire, Musée Zoologique de l'Academie Imperiale des Sciences de St. Petersburg, 1900, v, 4.—**Knaus, W.** Collecting notes on Kansas Coleoptera, ii, **4**.—**Müller, J.** Contribution to knowledge of cave Silphidæ, 1 pl., Verhandlungen, k. k. Zoologisch-botanischen Gesellschaft in Wien, li, 1, Feb. 25, '01.—**Pic, M.** Diagnoses of exotic Anthicidæ,* **35**, xlv, 2, Mar. 23; New Coleoptera of the Hamburg Museum, **104**.—**Rengel, C.** On the biology of *Hydrophilus piceus*, **81**.—**Schenkling, S.** New Cleridæ of the Hamburg Museum,* **104**.—**Webster, F. M.** Observations on several species of Dermestidæ, **75**.—**Wickham, H. F.** Cicindelidæ at artificial lights, **146**.

DIPTERA.—**Austen, E. E.** See Economic Entomology.—**Chagnon, G.** Preliminary studies on the Syrphidæ of the province of Quebec, Naturaliste Canadien, Chicoutimi, Quebec, March, '01.—**Christophers, S. R.** The anatomy and histology of the adult female mosquito [*Culex* and *Anopheles*], 6 pls., Reports to the Malaria Committee of the Royal Society, 4th series, London, March 30, '01.—**Coquillett, D. W.** New Diptera in the U. S. National Museum,* Proceedings, United States National Museum, No. 1225, Washington, '01.—**v. Kertész, K.** Spin-

ning Diptera [in Magyar, German summary], **101**, Feb.—**Lundbeck, W.** Diptera grœnlandica* [in Danish, diagnoses of new species in Latin], **105**.—**Packard, A. S.** Occurrence of *Anopheles quadrimaculatus* in Maine, **5**.—**v. Röder, V.** See Economic Entomology.

LEPIDOPTERA.—**Bachmetjew, P.** Why do the diurnal Lepidoptera fly only during the day and most nocturnal ones in the night? **40**, Feb. 15.—**Barrett, O. W.** Stray notes [Lep., Col.], **146**.—**Chapman, T. A.** Notes on Luffias, with incidental remarks on the phenomenon of parthenogenesis, **21**.—**Cockerell, T. D. A.** Lepidoptera: Some insects of the Hudsonian zone in New Mexico, iv, **5**.—**Davis, W. T.** See Neuroptera.—**Dognin, P.** Description of new Lepidoptera, Le Naturaliste, Paris, March 15, '01.—**Dyar, H. G.** On certain identifications in the genus *Acronycta*, **4**; Life histories of North American Geometridæ, xxi, **5**.—**Fletcher, J.** [Notes on some Canadian Lepidoptera], **75**.—**Gibson, A.** The breeding of Lepidoptera, with notes on the inflation of larvæ, **75**.—**Green, E. E.** Moth catching by electric light at the Boer camp, Diyatalawa, Ceylon, **8**.—**Grote, A. R.** Systematic arrangement of the North American Lepidoptera, **4**.—**Hall, F. J.** Notes on the Noctuid group Dicopinae of Kansas City, Missouri, **146**.—**Heath, E. F.** Notes on the occurrence of Lepidoptera, etc., in southern Manitoba, **4**.—**Heylaerts, F. J. M.** Description of an unpublished Psychid from Argentine Republic, *Chalia Kunckeli*, **35**, xlv, 2, Mar. 23.—**Kusnezow, N.** On the protective coloration and attitude of *Libythea cellis* Esp., fig., Horae Societatis Entomologicae Rossicae, xxxv, St. Petersburg, Nov., '00.—**Lyman, H. H.** Notes on Walker's types of *Spilosoma congrua*, and a few other types in the British Museum, **4**.—**Marshall, G. A. K.** On the female pouch in *Acraea*, **9**.—**McIntosh, W.** The hawk and bombycine moths of New Brunswick, introductory list, Bulletin, Natural History Society of New Brunswick, iv, 4, St. John, '01.—**Moffat, J. A.** *Anosia archippus* yet again, fig., **75**.—**Nash, C. W.** Notes on *Danias archippus*, **75**.—**Pagenstecher, A.** Libytheidæ, 4 figs., Das Tierreich, 14 Lieferung, Berlin, Feb., '01.—**Slevogt, B.** Are *Arctia caja* and other brightly colored Lepidoptera eaten by birds? **40**, Mar. 15.—**Standfuss, M.** Synopsis of experiments in hybridization and temperature made with Lepidoptera up to the end of 1898, **9**.—**Tutt, J. W.** Migration and dispersal of insects: Lepidoptera, **21**.

HYMENOPTERA.—**Ashmead, W. H.** Hymenoptera: Some insects of the Hudsonian zone in New Mexico, iv*, **5**.—**Cockerell, T. D. A.** The bee genus *Dioxys* in America, **146**.—**v. Dalla Torre, K. W.** A couple of nomenclatural remarks on the group Ichneumoninae of W. H. Ashmead's 'Classification of the Ichneumon Flies,' etc., of 1900. Wiener Entomologische Zeitung, xx, 3, Mar. 10, '01.—**Dickel, F.** My views on the results of the Freiburg researches on bees' eggs; Facts decide, not views (two papers), **149**.—**Emery, C.** Notes on the subfamilies Dorylinae and Ponerinae, **35**, xlv, 1, Mar. 7.—**Morice, F. D.**

and **Cockerell, T. D. A.** The American bees of the genus *Andrena* described by F. Smith, **4**.—**Observer.** How do bees manage to survive the winter? *British Bee Journal*, London, March 7, '01.—**Plateau, F.** Observations on the phenomena of constancy in some Hymenoptera, **35**, xlv, 2, March 23.—**Prowazek, S.** Observations on ants [senses of], *Der Zoologische Garten*, Frankfurt a. M., Feb., '01.—**Rudow.** Some observations on insect buildings, **84**, Mar. 7.—**Weissmann, A.** Remarks on Herr Dickel's article [see *ante*], **149**.

DEPARTMENT OF ECONOMIC ENTOMOLOGY

Edited by Prof. JOHN B. SMITH, Sc. D., New Brunswick, N. J.

Papers for this department are solicited. They should be sent to the editor Prof. John B. Smith, Sc. D., New Brunswick, N. J.

SOME NOTES ON THE LARVAL HABITS OF CULEX PUNGENS.

BY J. B. SMITH, SC. D.

New Jersey's reputation for mosquitoes is well established, and more people come into our State annually to be bitten by our shore species than go to any other State in the Union for any like purpose. In some of the swampy districts in the pines they make life a burden at times, so when my good friend J. Turner Brakeley wrote me in the late summer that, in looking at the contents of some pitcher plant leaves he had found mosquito larvæ in abundance in the water they contained, it made no especial impression upon me. It was in a way what I would have expected, though no one had noted this, so far as I could then remember. Dr. Riley at one time bred a number of species from this plant; but seems either to have found no mosquitoes or to have ignored them. Mrs. Treat made many interesting observations on the feeding habits of the plant itself, feeding the leaves with raw meat in place of the insects that ordinarily fall into them; but she also ignored the mosquitoes.

Late in November I spent three days with Mr. Brakeley at Lahaway, and one of our walks was into a huckleberry and wild cranberry swamp where pitcher plants were abundant. Though the weather was yet quite mild, mosquitoes were no longer obtrusive. There were occasional specimens to be sure, but they seemed to be left-overs not yet in hibernating quarters. The interesting point was that in every leaf examined there were wigglers varying in size from an eighth to a quarter of an inch in length. There was always a mass of insect fragments at the bottom, say from one-half to an inch in depth, and in composition this varied from a dense black ooze at the lowest point to entire or only partly decayed specimens at the top of the mass. The question arose at once whether these larvæ would yet develop that season, and from published accounts

I assumed that they must or perish. Dr. Howard in his careful account of the species of *Culex*, and especially *pungens*, says nothing of larval hibernation. He records finding adults, and, indeed, this was in accordance with my own experience.

The matter dropped here until late in January, when, during a bitter cold spell, Mr. Brakeley cut out a few pitcher leaves, stripped them from the core of solid ice they contained, and looking through saw wrigglers imbedded in all parts of it, in all sorts of shapes, but mostly in a half coil. The temperature of the bog had been down to 2° below zero, as registered by a standard minimum thermometer, and radiation probably lowered this even more.

A number of leaves were gathered, the cores of ice with all they contained were removed and the lumps were placed together in a jar in a moderately warm room. The ice melted slowly, and as the larvæ were gradually freed they dropped to the bottom where for a time they rested, apparently lifeless. But as the amount of ice decreased, feeble motions here and there indicated a revival, and long before the lumps were completely melted, those first released were moving about actively. This he noted was in water not much above the freezing point. Soon after the ice had melted and the debris had settled, the insects were busily engaged in apparent feeding.

The specimens were sent to me as a curiosity January 22d, and arrived in very good condition. A few had succumbed to the dangers of the journey, but altogether there was a good lot of lively wrigglers. The bottle was nearly full of water; it had had a five mile wagon drive over a rough road, had been transhipped no less than four times before it reached New Brunswick, and was thrown into the delivery wagon. Any regular breathing under these circumstances, of the kind usually described, was utterly out of the question, and drownings should have been numerous; but really only a very small number of specimens died.

At short intervals other jars were received, all of melted ice taken from pitcher plants, until I had several hundred active wrigglers in eight different jars. Some of the leaf chunks, Mr. Brakeley informs me, had only a very few larvæ—ten or a dozen; others ran as high as thirty or more.

The jars were all placed on a counter shelf near a steam radiator, and it was expected that in a few days there would be pupæ and adults. But the days passed into weeks and the weeks into months, without change, other than a gradual—a very gradual—increase in size. The larvæ were just as active and lively as they could be expected to be, and were feeding continuously; but evidently something was lacking. Besides, they did not in all respects behave as, according to Dr. Howard's account, they should have done. I do not suggest that the account as printed is not a perfectly accurate record of facts: merely that my specimens were Jersey mosquitoes and therefore a law unto themselves.

As the fragments settled to the bottom the water became almost entirely clear, the larvæ congregated over this sediment, feeding head down

and frequently rooting into it: varying the process by working along the glass of the jar on the side away from the light. It was very rare that an individual was observed at the surface with the spiracle in breathing position. I watched patiently several times 15 minutes at a time without noting a single individual rising to the top. Mr. Dickerson, one of the students, watched more or less continuously for two hours on one day and declared positively that during that period only a small percentage of the entire number came to the top. On two or three occasions, where my work was such as to allow it, I kept a jar within sight the entire day, and I have no hesitation in saying that some individuals remained below the surface for hours.

Occasionally a number of specimens would be at the surface, feeding, head up, so that the mouth brushes skimmed the surface, and these were watched on occasions for fully 20 minutes without noting any attempt to assume the breathing position. In fact, during the two months that these larvæ were under daily observation, the rising to the surface to breathe was the rare exception rather than the rule.

As to feeding positions, all of those figured by Dr. Howard were noted. Usually they were head down over the bottom sediment or head up, feeding along the sides of the glass or at the top. The mouth brushes serve as organs of locomotion as well as for feeding, and the insects are perfectly able to make their way from place to place without moving any other part of the body.

The jerky, wriggling motion is used when they wish to get away quickly, and as often to get down to the bottom as to get up to the surface. They can and often do sink slowly to the bottom without any motion whatever, and often to sink more rapidly, they curl themselves up into a ring. Occasionally a specimen will get hold of a bubble of gas forming at the bottom and will allow itself to be floated to the surface. It is immensely interesting to watch these little creatures; but as week after week went by without change, it became just a little tedious. To hasten matters a little, on March 1st I placed the two jars first received on a water bath which was kept at a temperature as nearly constant as the varying gas pressure allowed. Ordinarily the thermometer ranged between 100° and 110°, but it has gotten as high as 120° and as low as 90°. These were exceptions, however, and not exceeding the ordinary out-door range in June. The temperature of the water in the jars ranged between 80 and 90 almost uniformly.

A difference in the rate of growth was observable after a few days, and several specimens seemed approaching the adult condition; finally, March 18th, I noted the first pupa, 17 days after placing the jar on the water bath. From this the adult emerged March 21st and proved to be a female *C. pungens*. Three other pupæ were formed within a week after the first, and a second adult, also a female, was obtained March 24th.

As to the habits of the larvæ in the two jars artificially forced, there was little to note as different from those in the normal laboratory temperature

which varied from 40° to 78°, averaging a little under 70° for the 24 hours. They fed in much the same manner, kept away from the light as much as possible, passed most of their time at the bottom, but were more lively and more frequently at the surface. The jars were kept covered, except for a few minutes each day, and in none of them did the water foul, despite the vegetable and animal matter present in each.

March 24th I made an experiment that resulted fatally. It occurred to me that possibly the slow growth was due to lack of food, and Mr. Brakeley had written me that the wrigglers attacked and devoured a small gnat which was breeding in his jars, suggesting that possibly a mutton chop might help matters along.

March 24th I put a small lump of raw beef, chopped fine, into each of the five experiment jars. Next day I could give only a casual glance before going out of town and this showed nothing unusual; but the day after, March 26th, when I reached the laboratory at 8 A.M., I saw at once that something was wrong, because all the living larvæ were at the surface, head down, spiracle reaching the air. In every jar into which I had placed the meat I noted the same appearance, and I hastily fished out every particle. But it was too late: more than half were already dead, others seemed to show a fungoid growth proceeding from the segments so, to prevent their dying, I killed them off with a dose of formalin. One large jar received in February was left unharmed, and this was placed on the water bath March 26th. Nothing has come from it at the date of present writing, and nothing may ever come from it; but its history must be written later.

But this experiment, fatal as it proved, was of some value. It shows that water too foul with animal decay is not suitable for mosquito larvæ. Vegetable decay, and the harder refuse from insect bodies, will help along the development; but beyond that, the water must be clean. It seems to indicate further that the condition of the water may very largely determine the frequency with which the supply of oxygen must be renewed from above the surface. In June, with a supply of water at a relatively high temperature, in which microscopic life is swarming, I have no doubt Dr. Howard's observations would be exactly duplicated. With the same species in clean water, at a relatively low temperature, the breathing habits are quite different, and the insects obtain, I have no doubt, a goodly portion of their oxygen from the water itself. Just how they do this I am not prepared to say. One thing may be considered as certainly established by this series of observations: the insect can and does hibernate in the larval stage, if this is not, indeed, the prevailing method. Mr. Brakeley scoured the swamps for miles about within the last few weeks, and wherever he found pitcher plants, almost or quite every leaf had its supply of wrigglers. It is not, therefore, a local phenomena. Nor is it even suggested that pitcher plants alone furnish breeding places where the larvæ hibernate; but they are remarkably safe resorts protected to a very marked extent from natural enemies. Is there

any relation between plant and insect whereby the plant receives a benefit? Do the wrigglers in any way prevent a foulness of the water from the insect fragment until the plant has absorbed what it needs?

It is noticeable that during the whole winter only a single example of *Culex pungens* was taken in the barns, storehouses or cranberry sorting rooms, though they were diligently sought.

Anopheles punctipennis were found quite abundantly, between 20 and 30 specimens having been taken on the windows of the sorting rooms; but no *Anopheles* larvæ were found in any of the collected leaves. As a Jerseyman, Mr. Brakeley ordinarily pays little attention to mosquitoes, but he could not easily overlook *Anopheles* did it occur in any numbers in summer. He says it does not, and that he has never seen as many during his years of residence in the pines, as he did this past winter.

My own experience is similar: I remember that about three years ago I was annoyed by *Anopheles* very early in the year in my store room in the basement of the station building. Later on I saw nothing of them, and I can say positively that the species of this genus form no part of the often considerable swarms in and near New Brunswick.

In the cellar of my residence I took *Culex pungens*, female, March 22nd, flying. It could not well have developed there, and, of course, there can be no doubt that the species hibernates as an adult as well as in the larval stage.

These pitcher plant leaves contain, besides mosquito larvæ, considerable numbers of long, white, worm-like larvæ which Mr. Brakeley succeeded in breeding. Some examples submitted to Mr. C. W. Johnson he pronounced to be *Aedes fuscus* O. S.,* a species by no means commonly observed.

The present series of notes are not by any means a complete record of the observations made on the wriggler colonies at New Brunswick and in the pines and they are not even ended; but they will serve to call attention to one or two heretofore unobserved facts. They also contain a suggestion: Is it not probable that the mosquitoes that swarm in Alaska and Arctic regions may pass the winter in the larval stage, frozen in the solid ice, ready, when the melting times comes, to mature rapidly.

Hiding places for adults are occasionally somewhat scant in such regions, and the swarms are said to be even more numerous and vicious than they are in New Jersey.

MR. S. T. KEMP, of Elizabeth, N. J., has started for Arizona, where he will spend six months in collecting insects. We wish him much success.

MR. W. F. FISKE severed his connection with the Experimental Station at Durham, N. H., to accept the position of Assistant State Entomologist of Georgia. His new address will therefore be Atlanta, Ga.

* Later examples bred were *Chironomus* sp., hence at least one other species breeds in these plants.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

A CORRECTION.—In my notice of the life of Baron Edmond de Selys-Longchamps, in the February News, I stated (p. 34) that "He studied in the University of Liège." The authority for this assertion was Vapereau's *Dictionnaire Universel des Contemporaines*, sixth edition, Paris, 1893, p. 1431. It now appears that this is an error, for M. le Baron Walter de Selys has written to me "mon père n'a jamais fait d'études universitaires." Mr. McLachlan has correctly stated the case in his notice of the deceased in the Entomologist's Monthly Magazine for March.—PHILIP P. CALVERT.

SOME time ago a box of insects came to me. They were pinned in a rather heavy cigar box, lined with agave pith. The cigar box measured 8 inches in length, $2\frac{1}{4}$ in depth and $5\frac{1}{4}$ inches wide. This box was enclosed in an outer wooden box measuring $9\frac{3}{4}$ inches long, $4\frac{3}{8}$ inches deep and $6\frac{1}{8}$ inches wide. Six ounces of cotton were put between the boxes. Package came by express with nothing but the address on the box. What was the condition of the enclosed insects? If injured, why were they injured? If there were any mistakes made in the packing, what were they? We will publish the best answer in the June News.—HENRY SKINNER.

Sphæridium scarabæoides Linn.—On page 73 of the Classification of Coleoptera, by Messrs. LeConte and Horn, 1883, there is a foot-note relating to the species which states that "an European specimen has been found in Canada, but that it was undoubtedly introduced and accidental in occurrence."

Under the division of the tribe, the text reads, except *Sphæridium*, all the known genera of this tribe have been found in the United States."

In order to correct these statements, I would like to place on record the finding of this species in the Catskill Mountains of New York during the latter part of July, 1900, in considerable numbers under fresh cow droppings; some being taken on *copula*. It would seem that it is thoroughly established in that locality, for some years ago I also took a single specimen. While the species is included in Henshaw's List (No. 1662), I do not know of any previous record of its occurrence within the limits of the United States.—R. F. PEARSALL.

GREATER NEW YORK, with the assistance of lesser New Jersey, managed to get together about sixteen entomologists to take part in a bug-dinner on the 17th inst. The attraction was great, or the attendance would not have rivalled previous occasions on the 4th of July at Jamesburg. But it was all due to the irresistible collection-collation called Bill of Fare. Some of the tid-bits mentioned were San José Scale on the

Half-Shell; Broiled Pupæ in Case; Ox Bot Soup; Baked *Belostoma*; *Blattis* Roe; Roast *Dynastes*, stuffed with Apple Worms; Fried *Regalis* Larvæ, horns removed; *Cicada* Steak, with New Mushroom Sauce; Galls Sens Lat; Drawn *Sphinx* Tongues, braided; Pickled Lady Birds Feet; American All-Alive Cheese; Imported *Canthon* Pellets; Fungus Pie, Staphylinid Dressing; *Cychnus* Knuckles; Mud Wasp's Nests, with Jiggadobber Jelly; Extract de *Cimex*; Beer a la *Brachynus*; Pink *Antiopa* Milk; Sparkling Double-distilled Jersey Lightning (Bugs), bottled at Jamesburg under the supervision of the State Entomologist. Flies on the members were carefully removed by the waiters who secured a bushel. Cyanide, Chloroform, Sulphuric, Ether, Benzine, Naphthaline, Le Page's Glue and Bisulphide of Carbon were on tap. Other dainties, too numerous to mention, were served. Plasters of *Cantharis vesicatoria* were supplied to all needing them. It is hoped that the hilarious time at this this dinner will induce a greater attendance next year.

Doings of Societies.

A meeting of the Feldman Collecting Social was held April 17th, at the residence of Mr. H. W. Wenzel, 1523 S. 13th St. Eleven members present.

Mr. Boerner read a letter which he had received from our fellow-member, Mr. Philip Laurent, who is at Enterprise, Florida, and he stated that the locality where Dr. Castle and he had collected the last time they were there had been burnt over and the collecting was very poor. On behalf of Mr. Laurent, Mr. Boerner presented each member with a beautiful souvenir from Miami, Florida.

Mr. Wenzel spoke upon and exhibited the Pselaphid *Bryaxis luniger* taken at Anglesea, New Jersey, and *Nisaxis tomentosa* also found at Anglesea, which he had previously received from Florida. From the manner in which some of the Pselaphids are found they might be called subaquatic. In speaking of the difference in sexes he said that in *B. luniger* the males outnumbered the females, while in *N. abdominalis* the females outnumbered the males. He showed some work done by a species of *Scolytus* in the woody fibre of the sumach which he had found at Frankford, Pa.

Dr. Skinner spoke upon the preservation of insects from pests, and in twenty years' experience had found that the case which contains the drawers, or boxes, was a very important

factor. He did not think that a wooden case was the proper thing to use on account of the quantity of dust which collects and works its way into the interior, and suggested that a case made of tinned iron, like those used by ornithologists, would be the best. This would do away with the dust question and also the poisons which are now used. Dr. Skinner also stated that *Anthrenus varius* was the commonest pest in collections in this locality.

The question of destroying household pests was discussed by Dr. Skinner, who said that a very simple way to destroy the ants, beetles, larvæ, etc., was to melt naphthaline and pour it in the cracks, surbase, carpet or other places where the insects hide. Mr. Wenzel suggested that parafine or wax would be better because it would not evaporate.

Dr. Skinner stated that wax or parafine would not do for carpet on account of non-evaporation.

WM. R. REINICK, *Secretary*.

A meeting of the Entomological Section of the Academy of Natural Sciences of Philadelphia was held March 28th. Mr. H. W. Wenzel Vice-Director presided. Eleven persons were present. Mr. C. W. Johnson exhibited some pith (or fungus) which had caused the ends of minuten nadeln to disintegrate and allow the specimens to drop in the box. He said either moisture or an acid in the material had caused the trouble. The specimens came from Budapest, and Mr. Wenzel asked if the sea voyage might not have caused a dampness in the pith. Mr. Johnson also exhibited specimens of *Anopheles quadrimaculatus* and *punctipennis*; also *Aedes fuscus* raised from pitcher plants by Prof. Smith. He had also received *Aedes sappharinis* from Dr. Woldert, taken at the Philadelphia Neck. The difference in the palpi of the genera of mosquitoes was mentioned. Mr. Bradley exhibited an unique box for mailing insects which had been devised in France. The inner box in cork and the outer box is padded on the inside. He also exhibited living young of *Tenodera sinensis*. J. A. G. Rehn, H. D. Viereck and W. S. Huntington were elected associates.

HENRY SKINNER, *Recorder*.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADÉMY OF NATURAL SCIENCES, PHILADELPHIA.

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Protection of *Chionobas semidea*.

By SIDNEY C. CARPENTER.

I have read somewhere, but do not remember where at present, that *Chionobas semidea*, the White Mountain butterfly, is being exterminated by too much collecting. Now why can't this species be protected by law? It may seem novel to have butterflies under the protection of the law, but why should it? Of course a great many natural objects are protected for economical reasons: game, that the supply for market may not be exhausted; some birds, that they, in turn, may protect our vegetation from insects; forests, that the rain supply may not be interfered with; but a large number are protected for their own sake. Among these are: the game in Yellowstone National Park; the sea-lions on Seal Rocks, San Francisco; the big trees in California, and the Palisades on the Hudson River.

Why are the wild animals protected in Yellowstone Park? Not that they may be available for hunting at some future time, but that they may have at least one place in this great country where they may live and multiply in peace. Why are the Palisades and big trees protected? Simply that they may

remain in all their natural beauty. In the same way the sealions are kept as an attractive feature of the harbor.

If, as is supposed, *semidea* is a remnant of the Arctic fauna of the ice age, it is fully as interesting, in its way, as the big trees or Palisades, and is as much entitled to protection as they are.

Of course there is a demand for *semidea* among collectors, but can't the demand be met without exterminating the species? I think it can. Collectors who work at the White Mountains can do a good deal towards preserving the species by careful collecting. Although I think no true collector would do, some collectors (?) are fond of getting every butterfly in sight if they can, and it is from such as these that I would have the species protected by law. If certain sections, in which the food plant is abundant, could be set apart as places in which *all* collecting is illegal, a good deal would be done towards the desired end.

What does some one else think about protecting our little colony of Arctic exiles?

Prosopis Ziziae.

By JOHN H. LOVELL.

In the March number of Ent. NEWS, Mr. Robertson states that the name *Prosopis ziziae* Robt. is incorrect, and that it should read *P. ziziae* Ckll. He writes, "I have not described any species under the name *P. ziziae*, and have never used that name." But in the *Can. Ent.*, May, 1896, p. 136, after giving the characters of *P. affinis* Sm., he says, "I think that there is no question but that this is the *P. affinis* of Smith, but the male described by him probably does not belong to it. If, however, this should prove to be distinct from *P. affinis*, the name *Prosopis ziziae* is proposed for it." Mr. Robertson was, then, the first to write and the first to publish the name *Prosopis ziziae*. As the name is not required it certainly would have been better had it never been proposed.

In the *Entomologist*, Prof. Cockerell writes: "*P. affinis* Smith, and *P. modesta* Say. Mr. Robertson formerly published

the opinion that these were identical. I found I had two species from the Eastern U. S. to which I applied these names, and accordingly wrote to him about the matter. He replied that he also had arrived at the conclusion that there were two species concerned, and shortly afterwards he published the distinctive characters in *Can. Ent.*, May, 1896. His two species are the same as mine, but what he calls *affinis* I had called *modesta*, and vice versa." After referring to the poorness of the descriptions and the difficulty of identifying the species, he adds: "Mr. Robertson, feeling this, goes so far as to propose the alternative name *ziziæ* for the proposed *affinis*, and until we can have a better description of the latter, from Smith's type, it will be preferable, I think, to call the insect *ziziæ* Rob." The name "*Prosopis ziziæ* Rob." occurs several times in Prof. Cockerell's papers, and the author of the list of the Hymenoptera of New Jersey under *Prosopis* also writes, "*Prosopis ziziæ* Robt."

I do not think much importance is to be attached to attempts to identify the supposed males of *affinis* and *modesta* in Smith's and Say's descriptions.

Over the Range in a Wagon.

By PROF. and MRS. A. J. SNYDER.

(Continued from page 147, Vol. XII.)

On Monday we passed over the Gores range after a hard struggle and after we had exhausted our persuasive powers upon old Bay and Gray a number of times. The upper portion of this range is covered with heavy pine timber, and no doubt there is an abundance of game back from the road. Two young men who followed us and camped one night here had a shot at an elk, but the only game we saw was now and then a saucy pine squirrel. On the summit we found a perfect flower garden and butterflies abundant especially *Argynnis*. We hoped to find equally good collection on beyond, so foolishly only stopped here a short time, during which sixty-nine butterflies were taken. As we descended the range we entered a beautiful small park and early went into camp beside a spring of

excellent water. All the hill sides were covered at the tops with pines, and at the lower edges of these pine covered ridges were many flowers. Beautiful purple tinted columbines, sego lilies, vetches, sedum and several species of Compositæ. Here too there were butterflies until the approach of evening drove them to shelter.

The next day we made a long drive through Toponas, a country post-office, and on to Yampa, where the pasturage was so short that we had to hire it for our horses and turn them into the corall, or frequently change their staking ground. The day's journey was through the usual sage brush and marked by the absence of game or insects. In the midst of a small bunch of sage I found a huge cricket which looked so ferocious and snapped so viciously that one hesitated to touch it. Buffalo skulls were seen occasionally, but all good horns had been collected long ago. In several moist places were beautiful beds of the fringed gentian, and occasionally along the road would be seen a few blossoms of another species. The western red-tailed hawk was common but wary. One of the characteristic birds of this section of Colorado is the sage thrasher.

At Yampa we were again camped near an excellent trout stream and Will caught nine the first evening. The next day we both tried our hands at the sport and secured a fine string of the speckled beauties, all that we could eat. Here we also restocked our provision boxes and inquired for big game. About the yard in which we camped was a fence some sixty or more yards long made entirely of old elk antlers. To the left in the distance could be seen the Flat Top mountains, the home of elk and deer. In this section it was the usual thing to see near each ranch a meat house. A house built eight or more feet above the ground, and looking much like a large squirrel or dove house. This little house is enclosed with wire netting to keep away the flies, and within it the meat is hung exposed to the air. In that dry atmosphere meat will keep almost indefinitely.

After leaving Yampa, we felt that we were indeed striking into the wilderness. Our instructions carried us to a certain ranch, and from thence we were to take our course entirely by

keeping to the right or left of certain mountains or by following streams. After a day's drive of the usual up and down hill nature, we came to Trout Creek and decided to camp here, for a mountain rose before us too steep for a tired team. Several parties were in camp near here, and as every one we saw carried a rifle, we felt that at last we must be in a game region. Even here, we were near a ranch. It seems impossible in these days to get entirely away from the haunts of man, at least with a wagon. By using pack horses it is easy to reach points of such dense solitude that the most selfish recluse should be satisfied, but wherever a wagon can go the squatter may be found living an out-door life, and finding all that he needs for existence either through the aid of plow, pick or rifle.

The following morning, after desperate persuasion of old Gray, we slowly crawled up the mountain side, past two fern thickets—the first we saw in Colorado—and about 10 o'clock came to a fine spring, in whose neighborhood we were told deer abounded. Here we found a Mr. Green, of Canon City, Col., and his son Oscar in camp.

That morning Oscar had seen fourteen deer. Butterflies and even tents were forgotten, the forty-five -ninety taken from its case, and soon we were scouring the mountains back of camp where deer tracks were so abundant that it looked as though a large drove of sheep had been feeding. All the deer, however, had taken to cover, and not until we had given up the chase and were approaching camp had we a sight of one. On coming to the top of a ridge we saw a large one running through the valley some four hundred yards below, and both opened fire, but the deer escaped.

THE "BUGOLOGIST'S" DEER STORY.

"Next morning, before daylight, I was up and starting through the wet grass (it had rained during the night) in search of a deer. One was found within two hundred yards of camp, but it stood so still that I could not be sure it was a deer until it gave one jump and was out of sight in the timber. Less than half a mile from camp another, a two year old buck, was found on the top of the ridge and offered an excellent shot

at about one hundred and fifty yards. As the rifle cracked the deer jumped into the air and ran. On going to the spot no sign of deer or blood could be found, but I soon found its trail and had followed it but a few feet when the deer jumped from the brush almost under my feet, giving me for an instant a decided fright. It was so badly wounded that it went but a short distance and fell. It was necessary to shoot it again. By 7 o'clock we had our deer in camp and dressed. Our thirst for blood was somewhat satisfied with this killing. But two days later I again took a ramble through the ridges back of camp and shot a second deer. This gave us all the venison we could possibly use, and as we learned later was all the deer the law allows one to kill in one season in Colorado. A couple of days later, Will saw a buck with six or seven prongs, and we made some effort to find and kill this fellow, but he was too wary. While looking for this monarch of the forest I came up on one side of a log, and a fawn about a year old jumped up on the other side and ran about fifty yards, then turned and gazed at me in wonder. It afforded a beautiful shot, but was too pretty a picture to mar with blood, so the rifle was not raised. During the same morning a number of does were started and could easily have been killed, but we needed no meat, and were not of the number who kill for sport alone. It seems remarkable that the deer should have remained in this region, although Will had been firing the shot gun at birds almost continually, and I have taken the time of entomologists to tell of my first deer, not only because of its interest to me, but because the story proves that there are yet places in the United States where the deer are abundant, more abundant than I had supposed them anywhere outside of Yellowstone Park." Within a day's ride of this spot, in the Flat Top Mountains, elk are still abundant, but we had traveled far enough, had accomplished all and more than we anticipated in the way of game and, moreover, there was a miserable mountain to be crossed if we continued the journey, so we made this the turning point, and after a week in camp here started home.

Although several trips were made for insects nothing of value was found here except two *Catocala groteiana*, a few *Euprepia utahensis* and one *Pseudohazis nuttallii*.

Thistles were abundant in many places, and about these were dozens of humming birds. A burrowing mole was abundant about camp, and several were shot by watching for them and shooting them when they came up to throw out the dirt, and Will secured some good birds. Beetles we searched for diligently under stones and old bark but they were not there. *Pieris pallida* came about the spring and an occasional *Grapta*. A few common species were found on lower ground along the stream, but everywhere it was too dry and too late. Two evenings were spent in smoking our jerked venison, and then one morning we took a farewell glance at Eagle Point, which had been our land mark in all our ramblings near this camp, and realized that we were homeward bound. On our way to Yampa we stopped at noon for an hour's collecting, where *Pamphilia* and *Argynnis* were attracted to certain Compositæ growing in abundance in a little draw, and at Yampa, where we spent another Sunday, we tried sugaring, and actually caught several *Catocala*. On top of the Gores range where the flowers had been so abundant, we camped for an afternoon and night, and collected and sugared again. *Argynnis* were abundant, and a few very dark *Graptas* were taken. At sugar a few geometrids were taken, but no *Catocala*—too high we thought and too cool at night.

The bird fauna had changed remarkably since the outward journey. During all the going we had seen no butcher birds, but returning saw and shot a number. We imagined that they were beginning to migrate. Hawks were abundant and a number of large ones were killed, and among them several varieties of one species, Swainson's hawk, I believe, being the most common. On the Gores range we were just ahead of a forest fire which some careless camper had started, and whose smoke darkened the sky during all of one day. Vast quantities of pine timber are destroyed every year by these fires, although rangers are continually riding back and forth through the forest reserves, and there are heavy penalties attached to leaving unextinguished camp fires.

At the western base of the main range we camped one night, and again attempted sugaring. Result one *Catocala* and a few

more of the same species of geometer. The hurrah with which we reached the summit of Berthoud Pass, was hardly less hearty than the one with which we greeted it going up from the other side. We camped two days on the summit and collected on Mt. Flora which rises several hundred feet above the pass. Snow still abounded here, and at the edge of the snow banks we found *Colias meadii*. Just below the summit *Parnassius smintheus*, var. *nanus* was common, and at the timber line *Lycæna rustica* was abundant. In the timber *Arg. helena* was thick upon the flower patches, and an occasional *Colias eurytheme*, and one or two *meadii* were also found here. An almost white *Colias* (*scudderi* ♀) was also found, but not in abundance. One day we came down from the summit and had just reached the timber line as the sun went under a cloud. On coming to a large patch of flowers we found *Arg. helena* and a species of noctuid resting on the flowers. The Argynnis with their wings folded back to back as though asleep. Without using the net we soon tumbled these species into the bottle until it was full. At this point we completed our first thousand insects collected, and only two hundred more were taken, making 1200, or the smallest catch I have ever had in the Rockies. All because we were too late, and the weather was too dry.

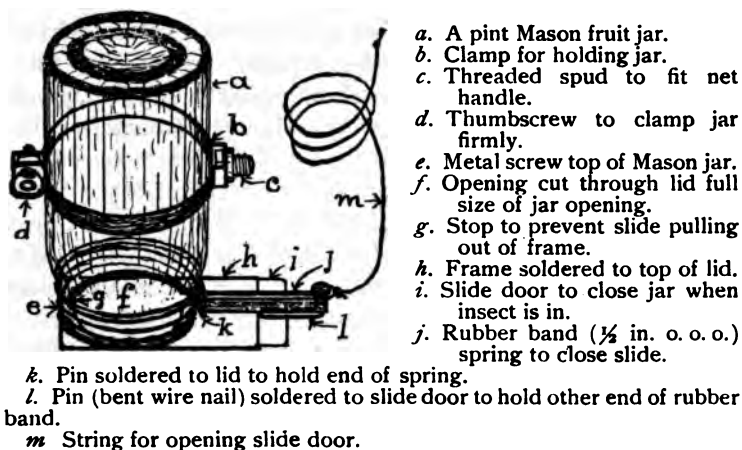
About Idaho Springs we found several species that were not seen on the outward trip. On Floyd's Hill we stuck fast and no amount of persuading or unloading could persuade old Gray to go up. At last a good Samaritan came along and helped us over the summit with his team, and because of his goodness we were able to disappoint our enemies and greet home and native land again. All was easy from this point on. We stopped again at our friend's residence, burned the remnants of our outing clothes, scrubbed ourselves diligently and replaced everything for the journey home. Our horses which had served us so faithfully, in spite of old Gray's eccentricities, were taken to the stock yards in Denver, and it was with delight that we were able to sell old Gray to one party, and see the faithful Bay go into the hands of an owner who promised to treat her well and not disgrace her by compelling her to work with such an old shirk as the one whom we had compelled her to labor.

Over three hundred bird and mammal skins, twelve hundred butterflies, a few beetles, all the game and fish we could eat, hearty out-door life and pure air we had enjoyed for more than seven weeks, and a closer contact with nature than had ever fallen to our lot, and all for a reasonable expenditure of money. Our appetites were enormous, our health good, and moreover there is nothing equal to the pleasure of getting home and living in a house once more. As our friends had said, "The memories of that trip will always be with us and we have little to regret." May all who hear this crude account some day, sometime, have an equally enjoyable trip.

A New Device.

Useful for taking Moths from Tree Trunks, Fences, etc., or from the Ground without using the Net.

By F. A. MERRICK, New Brighton, Pa.



The above cut shows very clearly an arrangement for an automatic closing lid for cyanide jar, also clamp for attaching jar to net handle. As I use the pint Mason jar exclusively for my cyanide jar, and use the M. Abbot Fraser net frame and jointed handle, I, of course, made it to suit these things—but a socket in place of threaded bolt at "C" would receive any cane or stick of any kind, and in place of the screw lid for a Mason

jar the frame and slide door can be soldered to any tin lid to slip *tightly* over or into any kind of a jar, so that any collector, by slight modifications, can adapt it to his favorite jar and net handle.

To use this device I simply remove the net from the handle and replace it with the clamp "b," insert one of my cyanide bottles and clamp it tightly by turning thumbscrew "d," then put on my lid and it is ready for use. Holding my net handle close to the end with my right hand, with my left I pull the string until the slide door is wide open; (the stop "g" prevents it being pulled entirely out of the slide); then I slip the string between the first finger of the right hand, and, the net handle pressing firmly on it, this holds the trap open until I have placed the mouth of the jar over his "mothship," and as soon as he flies out into the jar release the string and the lid will slide up and imprison him.

I used this with the most gratifying results last summer, not only on those that were too high to reach with bottle in hand, for which I had designed it, but equally desirable for those near the ground or *on* the ground, as, being enabled to remain several feet from them, I had no trouble in capturing the most wary, even in the hottest days. For *Catocalæ* I consider it *invaluable*, and extremely desirable for all *Heterocera*.

Should any of the readers of this have any difficulty in getting one made from this cut and description I shall be glad to give any further details on application, only please do not ask me to make them for you, as bugs are here and I am busy. A tinner can make you one.

On a Small Collection of Butterflies made in California and Arizona.

By HENRY SKINNER, M.D.

Prof. Levi W. Mengel of Reading, Penna., very kindly submitted to me for study a small collection of butterflies made by the late Mr. Irvin Runyeon of Reading. Mr. Runyeon made a wagon journey from Redlands, California, eastward into Arizona. His brother, Mr. George Runyeon, gives the fol-

lowing as the route: "He started from Redlands and went directly eastward through the passes of the San Bernardino Mountains; then still eastward through the Mohave Desert to the counties on the extremity of Arizona. He did not go further north than Bill William's Fork River, nor further south than La Paz.* He went about one hundred miles toward the interior and returned almost the same general way."

When I saw this collection I could hardly believe it was made in the United States, as there were so many species new to our list. I do not know how much of an effort Mr. Runyeon made to get Lepidoptera, but do not imagine he worked very hard at collecting as he was an invalid and only collected through his friendship for Prof. Mengel.

This list shows what we may expect in the future, and proves that many more species will be added from the south-west when the country is carefully collected. No large butterflies were taken, but there were two or three species of common *Lycænidæ* in poor condition.

LIST.

<i>Eudamus simplicius</i> Stoll.	<i>Heliopetes laviana</i> Hew.
" <i>eurycles</i> Latr.	<i>Hesperia syrichtus</i> Fabr.
" <i>dorantes</i> Stoll.	<i>Chiomara asychis</i> Cr.
" <i>zilpha</i> Butl.	<i>Thanaos tristis</i> Boisd.
" <i>alcæus</i> Hew.	" <i>funeralis</i> Scud.-Burg.
" <i>hippalus</i> Edw.	<i>Butleria microsticta</i> ? Godm.-Salv.
<i>Heteropia melon</i> Godm. and Salv.	<i>Ancyloxypha arene</i> Edw.
<i>Erycides amyntas</i> Fabr.	<i>Pamphila phylæus</i> Dru.
<i>Telegonus hahneli</i> Staud.	" <i>druryi</i> Latr.
<i>Timochares ruptifasciatus</i> Plotz.	" <i>eufala</i> Edw.
<i>Staphylus brennus</i> Mab.	" <i>nemorum</i> Bd.
<i>Pholisora catullus</i> Fabr.	

Out of these twenty-three species, eleven are new to our fauna of America north of Mexico. An expert collector could probably make a remarkable catch in this region.

* "La Paz is a small town near the western border of Arizona and near the Colorado River. It is almost midway between the Gila and Bill William's Fork Rivers.

MR. A. G. WEEKS, JR., of Boston, Mass., will describe over eighty new butterflies collected by Mr. W. J. Gerhard in Bolivia. They will be published in various journals and figured by Mr. Weeks.

A New Ascalaphid from the United States.

By NATHAN BANKS.

Our Ascalaphid fauna is not very large at present. There are three species of *Ptynx* from the extreme southern parts, one *Colbopterus*, and two species of *Ulula*; to this last genus I now add a third. No species are at present known from California, so it is quite probable that a few more species will be added to our meagre list.

The new species comes from Arizona, and is closely related to *Ulula hyalina*, but distinct by a number of minor characters.

Ulula albifrons n. sp.

Clypeus and mouth parts yellowish; head clothed with white hair, with which some gray is mixed. Antennæ brown, each joint narrowly tipped with pale; club pale brown, paler on tip, in length the antennæ reach only to the tip of abdomen. Thorax brown, mostly with white hair below, some brown hair above, especially each side of the metascutellum; on each anterior lobe of the thorax there is a pale yellowish spot, a median pale spot on mesoscutellum, and another on the metascutellum. Legs brownish, paler at knees. Abdomen brown, mottled with paler brown, and with black; last segment partly yellowish above. Wings hyaline, pterostigma dark brown; venation black, except the costal margin near base, which is yellowish; ten to twelve cross-veinlets between radial sector and radius before the pterostigma.

Length 20 mm.; expanse 50 mm.

Three specimens from Phoenix, Arizona, (Kunze). The difference between this and the allied *U. hyalina* may be gleaned from the following table of our three species of *Ulula*:

1. Pterostigma yellow, on hind wings several dark clouds near tip.

U. znadripunctata.

Pterostigma dark brown, sometimes one dark cloud in hind wings near tip 2.

2. Front with white hair, antennæ annulate, reaching to tip of abdomen, venation black, 10 to 12 cross-veins between radius and radial sector, smaller species *U. albifrons.*

Front with dark hair, antennæ not annulate, reaching beyond end of abdomen, venation partly light brown, 15 to 17 cross-veinlets between radius and radial sector, larger species . . . *U. hyalina.*

Anthocharis genutia has been quite plentiful this spring in New Jersey. Mr. Witmer Stone took it at Meford; Messrs. Viereck and Rehn at River-ton; Mr. Erich Daecke at Clementon; Dr. Skinner and Mr. Thomas at Westville, and Mr. W. G. Freedley at Crosswicks.

Letters from Thomas Say to John F. Melsheimer,
1816-1825.—IV.

Philad^a. April 27th 1817.

Dear Sir

I thank you cordially for the box of Insects you last sent me, they came to hand in the most perfect good order, not a pin was loosed, nor a member broken; some of them I had not in my collection, particularly the *Aradus*; but what is more important to me is that the insects you send me enables me to identify those of my cabinet with the names in your catalogue, all these names I shall preserve as far as I know them unless the insects to which they are adapted have been described by others under other names in this case the name of the described insect must be of course retained because it is already established & known to entomologists—& unless also your name is applied by other writers, to another insect of the same Genus, in this case too, the name must be changed to avoid confusion—I am very anxious that the vanity that induces many naturalists to change specific names unnecessarily, should be discountenanced, as I am convinced it will be, by every true friend to the interesting science we pursue; for besides introducing much confusion & adding exceedingly to the labour of the study, it is undoubtedly robbing the first describer of his just rights, If the thing is done through ignorance, it is another matter, & the innovator shall then be held guiltless, provided he exerted himself to obtain better information.—Some of the Insects you sent me I had already described under names of my own these names I was very happy to reject, in favour of those of your catalogue to which your numbers referred me——

The *Elatér Noctilucus* emits a permanent light so vivid that I could make out to read large letter press alone—Olivier's figure of this Insect represents it of the same size as ours, that of *Phosphoreus* about the size of your female *Aterrimus*—Herbst's figure of *Phosphoreus* is much larger than that of Olivier & represents it in length about an inch & a quarter & more than proportionally broad, he says in his description that

from its magnitude he would have taken it for the *Noctilucus*, if De Geer had not given as a distinctive & differential character of the two species, that in *Phosphoreus* the thoracic spots are visible beneath, a circumstance which combined with its magnitude & "Personne au surplus n'a remarque une dent mousse au milieu du bord inférieur du corcelet" will not permit us to consider them as the same, untill we know more about them—According to Humbolt & Bonpland the larva of *E. Noctilucus* feeds in the Sugar cane—Latreille also considers them as distinct—

The *Gymnopleure* I sent you under the name of *Indicus* is perhaps the *Leei* of Fabricius—the insect figured & described by Oliver, which he calls *Fulgidus* is certainly very similar to it, Fab : says it is only a variety It also strongly resembles the *sinuatus*, fig^d by Oliv : but indeed I am not certain of the insect at all it may be *Sinuatus* at last—

The two insects *Nemestrinus* & *Pithecus* in the descriptions given to us of them, bear to each other a strong resemblance. Turton says of both species that the "Elytra are striated" if this be true our insect cannot be either as its elytra, are not properly speaking, striated, as the lines are not at all impressed & but just visible, but this character Fab : omits—For *Nemestrinus*, Fab : refers to Herbst : Arch : t 43 f 1—This work I have, edited by Fuessly and translated into the French language, his figure is certainly not that of our species for besides many other differences the elytra are represented as strongly & very obviously striated, the thoracic horns also are very different they are placed nearer together & point more horizontally forward, Herbst observes that it is covered beneath & on the feet with red hair—But upon reference to Olivier's fig : & descr (This noble work I have access to through the kindness of a friend) I was at once convinced to a certainty that the Ins : I sent you as *Pithecus* is the *Molossus*—The color of *Pithecus* is ferruginous & it is much less than our Insect : & Oliv's fig. of *Nemestrinus* agrees perfectly with Herbst's—Olivier says of *Molossus* that at the base of the horn of the head on each side is an elevated line "Le corcelet est

coupé anterieurement et muni d'une petite cornu dessous de la corne il y a un petit enfoncement." I also referred to Drury's fig : (Exotic Ins :) which I found much better & more obviously characteristic than that of Olivier—The Ins: I sent you as *Molossus* comes nearest to Olivier's fig & description of *S. Bucephalus* & so I have named it in my collection.

As to the large *Buprestis*, specimens of which you sent me with the supposition of its being the *B. Mariana*, I cannot positively say what species it is referable to, but it is probable I think that it is no other than the *Mariana*—Fabricius, Syst. Eleut. says it inhabits "Europa boreali" he refers to Drury Vol 1 t 30 & to Herbst: Arch: t 28 f. 4—these two figures differ very much from each other, the latter was designed from the European specimen, & the former from a specimen captured in Virginia, & very probably the difference observable between the two figures, is owing to the little care taken in the drawing or engraving—In Turton's Lin: an insect is described under the name *Virginica* which is doubtless intended for the insect in question, he refers to this same fig. of Drury before mentioned—Fab. Syst. Eleut, omits this specific name (*Virginica*) no doubt judging it to be the same precisely with the European *Mariana*—Turton says of *Mariana* that it inhabits New Holland & does not give it as an European Insect at all—Olivier on the other hand says it inhabits in all Europe & also in America—So that you will see that the thing is not settled—Paykull. Faun. Suec. gives a description somewhat in detail, agreeing very well with our insect—I have not access to Petiver's Gazoph but that work is not quoted in the Syst: Eleut: under the species *Mariana*—The sinus in the terminal abdominal segment of the male is indeed remarkably conspicuous, the same conformation occurs though less obviously in some other Insects the only ones which at present occur to me as exhibiting the truth of this remark are the *Cicindelæ*, in some of the males of which, this structure is perceptible, & the tail of the females in many instances is canaliculated in a similar manner—The specimen you allude to marked *B*. I should suppose is but a variety it is however of a larger size & less

brilliant colour, if they are of frequent occurrence some distinguishing character may perhaps be established—

I am going on with my descriptions of our American Insects, this will be a work totally distinct from my "American Entomology"¹ this last I hope soon to issue the first number of, which has been delayed by unforeseen obstacles, which are now completely removed—I find a great many ins: for which I cannot refer to your catalogue, not having received the species of you; & many which are not contained in the catalogue; all these of course I have to name, I mean such as I have not been described; as for instance, I have thirteen species of the Genus *Cicindela*, there are only seven in your catalogue & of these but five whose names I can preserve the other two, not having received from you I have perhaps described under some other name; & so of others.

I should be very happy to receive from you any insects of your catalogue, that I have not had, & for these I should expect to remunerate you—

Of the two species of *Languria* you sent me one is the *Trogosita bicolor* of Fabricius & and the other *L. mozardi* of Latreille. I have found two new genera & perhaps three—one of which I have named & the second the first is remarkable for its large mentum, the anten: are moniliform & the thorax has three raised lines &c—the

is a small insect, one sex of which has two spines upon its very large palpi & the elytra are abbreviated—you shall hear more about them—²

I send you descriptions of some of our fresh water & land

¹ It is to be inferred from this that Say intended to publish these descriptions on lines similar to those of his *American Entomology*, which intention was, however, not consummated. These "descriptions," if of new species, probably appeared in the many articles contributed by Say to the various journals then existing. It is more likely that they were descriptions of known as well as new forms, and were never published.—W. J. F.

² These proposed genera were probably never published by Say, as they are omitted from Scudder's *Nomenclator*. It is therefore thought advisable not to include the names here.—W. J. F.

shells, these I made out for an Encyclopedia publishing here & for which I have undertaken the department of Natural History—since these were published I have found several new species—(It is a small pamphlet & will be sent by the same mail with this letter)

Mr. Le Seueur, the celebrated friend of Peron, a French naturalist no doubt well known by character to you, is about to publish an elegant work on the American Fish, he does every thing himself, draws, engraves, prints & colours, so that it will be got out with the least possible expense, he has already engraved eight plates for it; he intends to have it of the same size as mine³—Prof. Barton, nephew of the late Prof. B. S. Barton intends to publish a work on the plants of North America with coloured plates,—

“A general System of Nature through the three grand kingdoms of Animals, vegetables & minerals” &c “translated from Gmelin’s last Edition of the celebrated *Systema Naturæ* by Sir Charles Linné—amended & enlarged by the improvements & discoveries of later naturalists & societies with appropriate Copperplates by William Turton, M.D.” it is in Six volumes octavo & the last set which has been rec^d from England was imported by a friend of mine for his own use, it cost him five Dollars each volume it is a work of little repute in England, & rarely quoted by Entomologists The “Transactions of Linnaean Society of London” are now in Eleven volumes—One volume is published each year & costs about one hundred dollars for the whole Eleven volumes

I would thank you to let me know of any European Works in which any of our American Insects are described I am determined to get them all if possible for I cannot well do without them. I would be liable to describe as new, Insects well known & and long since described in Europe

With the highest respect
I remain your most Obedt Servt
Thomas Say

³ This intended work does not seem to have been published, as it is omitted from bibliography—W. J. F.

Contributions to the Odonata of Maine.—IV.

By (the late) F. L. HARVEY, Orono, Me.*

(Continued from ENT. NEWS., Vol. IX, Nos. 3 and 4, 1898).

Species in this article reported for the first time by me are numbered from 67 to 82. Those below 67 refer to species first reported in ENT. NEWS, Vol. II, Nos. 3 and 4, 1891; Vol. III, Nos. 4 and 5, 1892, and Vol. IX, Nos. 3 and 4, 1898. Fourteen species new to Penobscot water are recorded, making the species known to occur in the Penobscot Valley 82. The number of species known to the writer to occur in Maine is 93. We have added full descriptions of some of the rarer species, thinking they will be acceptable to entomologists. We have taken pains to give exact data, recording localities for rare species so that in the future others may know where to look for them.

The remarkable finds are *Enallagma geminatum*, *Ophiogomphus carolus*, the females of *Ophiogomphus anomalus* and an abundance of males; *Ophiogomphus asperus*, *Ophiogomphus johannus*, an abundance of the males of *Gomphus scudderi*; *Neurocordulia Yamaskanensis* and *Somatochlora septentrionalis* new to the United States; *Celithemis ornata* taken inland, and *Leucorhinia frigida* and *glacialis*, both rare species.

Subfamily CALOPTERYGINÆ.

1. *Calopteryx maculata* Beauv.

A single male on Russell Stream, N. E. Carry, August 27th, 1899 (Harvey).

54. *Heterina americana* Fabr.

A single male along a swift flowing brook, July, 1898, Auburn (E. D. Merrill); many of both sexes, 1898, Winslow (C. F. Hitchings); Chemo Mills, Sept. 13, 1899 (Harvey). Prof. Hitchings has reared this species and has the nymphs. Our specimens were taken from rocks in swift water.

* The last letter from Prof. Harvey received by me, written a very few days before his death, accompanied the manuscript of this article, and contained this request: "Please make the best you can of this for me." I have carefully compared the various sheets sent to me, some being in duplicate—with the present result. A few supplementary notes of my own are enclosed in square brackets [].—P. P. Calvert.

Subfamily AGRIONINÆ.

60. *Lestes congener* Hagen.

Orono, Me., July 29, 1899 (Harvey). Over small pond in pasture. Abundant.

3. *Argia violacea* Hagen.

Chemo Stream, Sept. 13, 1899 (Harvey). Several specimens seen. A very late date for this region.

58. *Erythromma conditum* Hagen.

A single male taken at Vinal Brook, Orono, Me., July 3, 1899, has the abdomen fully 30 mm. long. This specimen has on the dorsum of the abdominal segments 8 and 9 a narrow median black line, which extends on 8 about seven-eighths the length, and on 9 about two-thirds the length; also on 8 and 9 on each side of these median lines, near the end, is a small round dot. These markings are not mentioned in descriptions of this species and should be recorded. We have not examined a large series and these marks may be normal. The books say '8 and 9 blue.'

8. *Enallagma hageni* Walsh.

The coloration of this species is quite variable. Specimens taken at the same locality and the same dates, and having undoubted appendages of this species, varied as follows in the color of the abdomen: (a) Apical fourth of 3-5, more than half of 6, whole of 7 and 10, black. (b) Apical third of 3, half of 4, two-thirds of 5, the whole of 6-7 and 10, and a proximal dot on each side of 8, black. (c) Apical fourth of 3-4, third of 5, three-fourths of 6, whole of 7 and 10, and a longitudinal stripe on either side of distal half of 8, black. (d) Apical fourth of 3-4, one-third of 5, three-fourths of 6, whole of 7 and 10, and a longitudinal stripe on each side of the whole length of 8, black; the stripes are connected by an apical ring, their proximal ends show a tendency to be connected, being extended transversely, and there is a median dorsal dot between the extensions. (e) Another specimen lacks the dorsal dot and apical ring.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., JUNE, 1901.

We publish this month some letters received in regard to the shipping of insects, because we believe they will have a good effect and call attention to the great carelessness of American entomologists in regard to entomological technic. It is true that we will always have the careless and slipshod collector as well as those that are careful and neat; but the careless can learn and improve, and the average condition of collections may be raised to a higher standard. To be personal in illustration, we wish that all Coleopterists could see the collection of Mr. H. W. Wenzel of Philadelphia, and all Lepidopterists the collection of Dr. Strecker of Reading. Many persons, however, do excellent work in entomology who have not the time to look after details.

We wish to call attention to the valuable address of the President of the Entomological Society of London.*

It is full of strong, common-sense points in regard to descriptions, types, orthography, etc., and should be of interest to all entomologists.

I RAISED *Thecla martealis* this season from full grown larvæ at Miami, Florida. The food plant was a tropical shrub *Trema micrantha*, the larva a dull green with no markings, the whole upper surface covered thickly with short bristle-like hairs of pure white, giving the larva a frosted appearance.—ANNIE TRUMBULL SLOSSON.

* Trans. Ent. Soc. Lond., pt. v, 1900.

Entomological Literature.

COMPILED BY P. P. CALVERT.

Under the above head it is intended to mention papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology will not be noted. Contributions to the anatomy, physiology and embryology of insects, however, relating to American or exotic species, will be recorded. The numbers in **HEAVY-FACED TYPE** refer to the journals, as numbered in the following list, in which the papers are published; * denotes that the paper in question contains descriptions of new North American forms. Titles of all articles in foreign languages are translated into English; usually such articles are written in the same language as the title of the journal containing them, but when such articles are in other languages than English, French, German or Italian, this fact is indicated in brackets.

2. Transactions of the American Entomological Society, xxvii, Philadelphia, May, '01.—**4.** The Canadian Entomologist, London, Ont., May, '01.—**5.** Psyche, Cambridge, Mass., May, '01.—**6.** Journal of the New York Entomological Society, March, '01, Rec'd. April 29.—**9.** The Entomologist, London, May, '01.—**11.** The Annals and Magazine of Natural History, London, '01.—**12.** Comptes Rendus. L'Academie des Sciences, Paris, '01.—**21.** The Entomologist's Record, London, April 15, '01.—**22.** Zoologischer Anzeiger, Leipsic, April, 15, '01.—**35.** Annales, Société Entomologique de Belgique, xlv, 4, Brussels, April 30, '01.—**36T.** Transactions, **36P.** Proceedings, Entomological Society of London.—**45.** Deutsche Entomologische Zeitschrift, 1900, heft ii, Berlin, Feb., '01.—**46.** Tijdschrift voor Entomologie, xliii, 3-4, The Hague, April 5, '01.—**50.** Proceedings, United States National Museum, Washington, '01.—**54.** Journal, Royal Horticultural Society, xxv, 3, London, April, '01.—**74.** Naturwissenschaftliche Wochenschrift, Berlin, '01.—**79.** La Nature, Paris, '01.—**93.** Rendiconti, Reale Accademia dei Lincei, Rome, April 21, '01.—**146.** The Entomological Student, Philadelphia, May 15, '01.

THE GENERAL SUBJECT.—**Bohn, G.** L'Evolution du pigment, Scientia. Biologie No. 11, Febr., '01. [Paris ?].—**Brandicourt, V.** Insects: resistance to death by decapitation or submersion, **79**, May 4.—**v. Dalla Torre, C. W.** [Literature on] Relations between plants and animals, fertilization, injuries to the plant world by animals, etc., for 1898, Just's Botanischer Jahresbericht, xxvi, ii, 3, Leipsic, '01.—**Dewitz, J.** Prevention of pupation in insect larvæ, fig., Archiv für Entwicklungsmechanik der Organismen, xi, 3-4, Leipsic, April 12, '01.—**Elwes, H. J.** Obituary notice of the late Dr. Otto Staudinger, **36P**, 1900, pt. v, April 19, '01.—**Verrall, G. H.** The President's address (descriptions and types, orthography in entomology), **36P**, *ibid.*

ECONOMIC ENTOMOLOGY.—**Anon.**—The malaria expedition to Nigeria, Science, New York, April 19, '01.—**Banks, N.** Bibliography of the more important contributions to American Economic Entomology. Part vii. The more important writings published between Dec. 31, 1896, and Jan. 1, 1900. U. S. Dep't. of Agriculture, Division of

Entomology, Washington, '01. 100 pp. + 13 pp., index.—**Billotte**. Phylloxera in Lorraine, Memoires, l'Academie de Metz, cxxxix année, 1898-99. 1900.—**Bordage, E.** On some [insect] parasites of the coffee-tree in Reunion, Bulletin, Société Nationale d'Acclimatation de France, Paris, Mar., '01.—**Fernald, C. H.**, and **H. T.** Report of the entomologists, 13th Annual Report Hatch Exper. Sta., Massachusetts Agric. College, Boston, Jan., '01.—**Britton, W. E.** Experience with hydrocyanic acid gas in barn and greenhouse, On the banding of trees to prevent the fall cankerworm, Miscellaneous notes on insects and insecticides, and with **Jenkins, E. H.**, The protection of shade trees, figs., 9 pls. Report, Connecticut Agric. Exper. Station for the year ending Oct. 31, 1900, pt. iii. [Date and place of publication not given].—**Cartaz, A.** Trombidiosis, 79, April 6.—**Cousins, H. H.** Fumigation with hydrocyanic acid gas, 54.—**Felt, E. P.** 16th Report of the state entomologist on injurious and other insects of the State of New York, 16 pls. Bulletin 36, New York State Museum, Albany, Mar., '01; Illustrated descriptive catalogue of some of the more important injurious and beneficial insects of New York State, Bulletin 37 of same, Sept., '00.—**Fockeu, H.** The Potentillas, their vegetable and animal parasites, their galls, Revue Generale de Botanique, Paris, April 15, '01.—**Gillette, C. P.** Apiary experiments, 6 pls., Bulletin 54, Agric. Exper. Station, Agric. College of Colorado, Fort Collins, Colo., May, '00. Rec'd. May, '01.—**Hollrung, M.** Jahresbericht über die Neuerungen und Leistungen auf dem Gebiete des Pflanzenschutzes Zweiter Band: Das Jahr 1899, Berlin. Paul Parey, 1900.—**Laveran.** *Anopheles* and its role in the propagation of paludism, Comptes Rendus, Société de Biologie, Paris, April 20, '01.—**Newstead, R.** The currant bud-mite or currant gall-mite (*Phytoptus ribis* Westw.), figs., 54.—**Noé, G.** Propagation of blood filariæ solely by the puncture of mosquitos (3rd preliminary note), 93.—**Rogers, L.** The transmission of the *Trypanosoma Evansi* by horse-flies, and other experiments pointing to the probable identity of Surra of India and Nagana or tsetsefly disease of Africa, Proceedings, Royal Society, London, No. 444, May 4, '01.—**Sajo, K.** Weevils injurious to rye, Zeitschrift für Pflanzen-krankheiten, xi, 1, Stuttgart, March 16, '01.—**Sanderson, E. D.** Report of the Entomologist, many figs. Twelfth Annual Report, Delaware College Agric. Exper. Station for the fiscal year ending June 30, 1900. Newark, Del., '01.—**Smith, J. B.** Report of the Entomological Department of the New Jersey Agric. College Exper. Station for the year 1900, figs. Somerville, N. J. 1901. (N. J. Agr. Coll. Exper. Sta. Rep., pp. 477-572).—**Stephens, J. W. W.**, and **Christophers, S. R.** [The proposed site for European residences in the Freetown Hills, etc.]; **Daniels, C. W.** Observations on the *Anopheles* of British Central Africa during dry season; Distribution and breeding grounds of *Anopheles* in British Central Africa; Development of "crescents" in "small dark" *Anopheles*, Reports to the Malaria Committee of the Royal Society, fifth series, London, April 22, '01.—**Wilcox,**

E. V. Abstracts of recent papers, Experiment Station Record, xii, 9 (U. S. Dep't. of Agriculture), Washington, '01.

ARACHNIDA.—**Banks, N.** Some spiders and other Arachnida from Southern Arizona,* **50**, No. 1223.—**Cambridge, F. O. P.** On a collection of spiders from the Bahama Islands made by J. L. Bonhote, Esq.; with characters of a new genus and species of Mygalomorphæ,* **1** pl., **11**, April.—**Kræpelin, K.** Palpigradi and Solifugæ, 118 figs., Das Tierreich, Lieferung 12, Berlin, Feb., '01.—**Piersig, R.** Remarks on the genus *Arrhenurus* Dugés, **22**.—**Simon, E.** Descriptions of new Arachnids of the family Attidæ, **35**.—**Wagner, W. A.** The aquatic spider *Argyroneta aquatica*, its industry and its life: material for comparative psychology, figs., **1** pl. [In Russian, French summary], Bulletin, Société Imperiale des Naturalistes de Moscou, 1900, Nos. 1 and 2.

MYRIOPODA.—**Ludwig, F.** Phosphorescent myriopods and the luminous rotting of wood, Centralblatt für Bakteriologie, Jena, April 12, '01.—**Nemek, B.** On the phylogeny of some Diplopod families, **22**.—**Rossi, G.** On the subintestinal nervous system of Myriopods, figs., **93**.

ORTHOPTERA.—**Hartline, D. S.** A plague of walking sticks [*Diaphomera femorata*], fig., Popular Science News, New York, April, '01.—**Morse, A. P.** New North American Orthoptera,* **4**; Variation in *Tridactylus*, figs., **5**.—**Petrunkewitsch, A.**, and **von Guaita, G.** On sexual dimorphism in the sound-producing apparatus of Orthoptera, 4 pls. Zoologische Jahrbücher, Abtheilung für Systematik, xiv, 4, Jena, Mar. 18, '01.—**Rehn, J. A. G.** Remarks on some Mexican Orthoptera, with descriptions of new species,* **2**.

NEUROPTERA.—**Imhof, O. E.** Antennæ of Odonata, Biologisches Centralblatt, Erlangen, Apr. 15, '01.—**Williamson, E. B.** The subgenus *Stylurus* Needham: Selys' groups vi and vii of the genus *Gomphus* (Odonata), and on the postanal cells in the latter, 2 pls., **2**.

HEMIPTERA.—**Caudell, A. N.** The genus *Sinea* of Amyot and Serville,* 2 pls., **6**.—**Cockerell, T. D. A.** Contributions from the New Mexico Biological Station: xi, new and little known insects from New Mexico* [Coccidæ, Hymenoptera], **11**, April; The coccid genus *Saissetia*,* **146**.—**Coutière, H.**, and **Martin, J.** On a new subfamily of marine Hemiptera, the Hermatobatinæ, **12**, April 29.—**Dis-tant, W. L.** Rhynchotal notes, ix, Heteroptera, fam. Coreidæ,* **11**, May.—**Hansen, H. J.** On the morphology and classification of the auchennorrhynchous Homoptera, **9**.—**King, G. B.** Two new species of *Pulvinaria*,* **4**; *Pulvinaria innumerabilis* Rathv., **5**.—**Porta, A.** The secretion of foam in *Aphrophora*, critical note, Monitore Zoologico Italiano, Florence, Mar., '01.—**Reed, E. C.** Synopsis of the Hemiptera of Chile (cont.), Revista Chilena de Historia Natural, Valparaiso, Feb., Mar., '01.—**Schouteden, H.** The genus *Siphonophora* C. Koch, **35**.

COLEOPTERA.—**Arrow, G. J.** Remarks on secondary sexual differences in Rutelid Coleoptera, with descriptions of some new forms, figs., **11**, May.—**Champion, G. C.**, and **Chapman, T. A.** Observa-

tions on some species of *Orina*, a genus of viviparous and ovo-viviparous beetles, 2 pls., **36T**, 1901, pt. 1, April 30.—**Ehrmann, G. A.** Notes on the discovery of *Pinodytes hamiltonii* Horn, **146**.—**Harris, E. B.** Cicindelidæ of Mt. Desert, Maine, **6**.—**Horn, W.** Seven new Cicindelidæ, **45**.—**Jacoby, M.** Descriptions of four new species of *Disonycha* (Coleoptera Phytophaga, fam. Halticidæ), * **9**.—**Lesne, P.** Sexual variation in the males of certain Coleoptera, family Bostrichidæ, periodic pœcilandry, **12**, April 1.—**Ohaus, F.** Revision of Parastasiidæ, **45**.—**Schenkling, S.** New American Cleridæ, * **45**.—**Schwarz, O.** New exotic Elateridæ, * **45**.—**Welse, J.** Correction of observations on the food of our Coccinellidæ, **45**; Two new Cassidinæ, **45**.

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Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

HOW FAR MAY A MOSQUITO TRAVEL?—While the subject of mosquitoes is a popular one, perhaps a little note will not be amiss regarding one feature of them in this arid region. The country is too dry for mosquito propagation, and, with an average of perhaps one light shower a year, only the scantiest and hardiest of vegetation can exist. The Colorado River is the nearest breeding place to our mining camp, and from it the mosquitoes occasionally find their way here between April and July, the time of greatest abundance. The nearest point on the river from here is twelve miles to the southeast, where our pumping station is located. Yuma, which is eight miles farther up the river, is twenty miles away. Farther north, the river makes a large bend to the east until it is forty miles away; but, in the backward curve, it again comes within twenty-two miles, this time on the northeast of us. Winds that blow from the east and northeast are the ones that bring the mosquitoes—not an occasional one, but in numbers to worry the most stoical. A high wind brings very few if any, but a steady gentle breeze of two or three days' duration is the most prolific. The mosquitoes may scarcely arrive here before a breeze sets in from the opposite direction and starts them on the return trip, but are more likely to remain from a few days to

half a score before the counter wind drives them away. In the spring there is seldom a southeast wind (blowing from our nearest point on the river), but when there is it brings the mosquitoes in abundance and sooner than from the northeast.

The most of the mosquitoes here, then, must have traveled over a hot, dry, barren desert waste for at least 22 miles, and many of them probably considerable farther to reach any place even as inviting as this. How much farther into the desert they may journey can only be conjectured, but I have found them at least 4 miles beyond here.

The genus *Anopheles* is probably not found along the Colorado. At least its attendant malaria is unknown to this region.—G. C. DAVIS, Ogilby, Cal.

THE NEW MEXICO BIOLOGICAL STATION.—The Biological Station was founded as an independent institution at Mesilla in 1896. In 1899 it was moved to Las Vegas, and held a successful summer session in the New Mexico Normal University. A brief session was also held in 1900. The students in attendance have been mostly public school teachers. The results of the research work have been published in the *Annals and Magazine of Natural History*.

The Station will now be conducted as a part of the work of the biological department of the Normal University. The session of 1901 will commence on the first of June. A course in Nature Study will be offered to public school teachers, and opportunities will be afforded for research work along a number of different lines.

Las Vegas offers excellent opportunities for biological work. The summer climate is very good, and at no time is the heat excessive, as it is at lower altitudes in New Mexico and other parts of the Southwest. The altitude is about 6400 ft., with mountains close by rising above 11,000 ft.

Four distinct life-zones—the Upper Austral, the Transition, the Canadian and Hudsonian—can be studied within 35 miles of Las Vegas. It results from this that the local fauna and flora are extremely rich in species; in the Hudsonian Zone are forms of circumpolar distribution, and others ranging to Alaska, though not to Asia or Europe; in the Canadian Zone we find types inessential with those of the mountains of the Northern States and of Colorado; in the Transition a varied assemblage typical in part of the foothill region of the Rocky Mountain Range; in the Upper Austral many species characteristic of the arid southwest, some ranging far southward and westward. With all this comes a certain percentage of local or endemic types, just how numerous further research must determine. Such are the snail *Ashmunella thomsoniana porterae* and the magnificent butterfly *Argynnis nitocris nigrocærulea*, both found in Sapello Canon.

The Gallinas River, flowing through Las Vegas, contains a crawfish (*Camburus gallinus*), described as new last year, some interesting fishes (*Leuciscus* and *Rhinichthys*), and a variety of aquatic insects, algæ, etc.

The Hot Springs, six miles away, contain some peculiar organisms, which have not yet been sufficiently examined.

In the Arroyo Pecos, and elsewhere in the immediate vicinity of the town, is an immense alluvial deposit of pleistocene age, containing innumerable remains of mollusca and occasional mammalian fragments.

Special facilities are offered to students of wild bees (*Apoidea*), the available collections and literature being very extensive. Facilities are also offered for the study of *Coccidæ* and other groups of insects. Students should, if possible, bring their own microscopes, slides, forceps and other accessories.—For further information apply to T. D. A. COCKERELL, East Las Vegas, N. M.

CONTRIBUTIONS FROM THE N. M. BIOLOGICAL STATION.

The following contributions have been published in *Annals and Magazine of Natural History* :

1. Descriptions of New Bees collected by Prof. C. H. T. Townsend in the State of Vera Cruz. By T. D. A. Cockerell. Oct., 1896.
2. On a Collection of Diptera from the Lowlands of the Rio Nautla in State of Vera Cruz. By C. H. T. Townsend. January, July, September, 1897.
3. The Bees of the Genus *Colletes* found in New Mexico. By T. D. A. Cockerell. January, 1897.
4. Diptera from the Sacramento and White Mountains in Southern New Mexico. By C. H. T. Townsend, February, 1897.
5. Some New Hymenoptera from the Mesilla Valley, New Mexico. By T. D. A. Cockerell. April, 1897.
6. The New Mexico Bees of the Genus *Heriades*, and a New *Halictus*. By T. D. A. Cockerell. August, 1897.
7. Observations on Bees, with Descriptions of New Genera and Species. By T. D. A. Cockerell and Wilmatte Porter. December, 1899.
8. The New Mexico Bees of the Genus *Bombus*. By T. D. A. Cockerell and Wilmatte Porter. November, 1899.
9. On Certain Genera of Bees. By T. D. A. Cockerell and W. P. Cockerell. January, 1901.
10. Observations on Bees Collected at Las Vegas, New Mexico and in the Adjacent Mountains. By T. D. A. Cockerell. Jan., 1901.

ANSWERS TO DR. SKINNER'S NOTE IN THE MAY NEWS, PAGE 158, IN REGARD TO SHIPPING INSECTS.

1. Pinning the insects in agave pith may corrode the ends of the pins and may cause, especially when the box has been a long time on its way, breaking of the pins and more or less destruction of the contents of the box

2. The inside box ought to be light, so as to put as little pressure as possible on the cotton that surrounds it ; the heavier the inside box, the

stronger and more jerky the vibrations of the box and the easier loosing of the needles. The amount of cotton put between the two boxes was *far too much*; this quantity of cotton could not work as an elastic buffer between the outer and inner box.

The contents of the box should have been written on the outer box, and also the address of the sender.

I think that the contents of the box must have been badly damaged, especially if Lepidoptera or Diptera were in it.—DR. GEO. W. BOCK.

I EXPECT the insects were damaged, because of too much cotton, jammed in tight so that the inner box could not move. Under these circumstances the insects would be liable to move, on the same principle as the second of two billiard balls in contact, the first being hit; or the inner table of the skull, sometimes fractured by a blow, as by a spent bullet on the outer table.—T. D. A. COCKERELL.

Replying to conundrums published on p. 158, vol. 12 of ENT. NEWS, I should think

1st. "The condition of enclosed insects" would resemble what "we boys of the 60's" called a "hishy hashy h—l fired stew," composed of salt pork, fresh beef, hard tack, white beans, green grapes, potatoes and any other ingredients we could lay our hands on—all stewed together.

2nd. If any insects escaped injury, it must have been through *lack of cotton*. With a good heavy caulking chisel and a sledge I believe more than six ounces could have been forced into the space between the boxes. The outer box should be strongly nailed before beginning to caulk, and care should be exercised not to *jar* the insects with the sledge while caulking, as the antennæ are very fragile and easily jarred off.

Perhaps molten lead poured in to fill the space between the boxes would give the whole thing a rigidity that could not be obtained with cotton, however well packed. I have never tried it, but imagine it might give better results; only I have not yet decided how to *unpack* it, without jarring it too much; possibly it could be melted off.

I imagine that box must have been sent you by the man who "shoots" *Catocala*, under the impression that specimens who can survive shooting are safe under any conditions.

Of the many hundreds of specimens I exchanged this winter expanded, via. express, not one specimen was destroyed.

I use pasteboard boxes, packed in 5 ct. wooden basket, with excelsior, 100 to 150 specimens packed ready for shipment weighing 2 lbs.—F. A. MERRICK.

THE insects were damaged, as six specimens were rolling around in the box and playing ten pins with the others, and bowling off antennæ, legs, etc. If pith is used to line boxes, the boxes should be just deep enough to prevent the point of the pin from ascending to the surface of the pith. The express company in this particular case did not know but

what the box contained pig iron or bars of lead. If the outer box is strong there is no necessity for having the inner box very heavy. We often get boxes here that show that the senders think that the more cotton or excelsior they use between the boxes the greater their safety, and if they had a steam hammer handy they would doubtless use that to get more in. Very few people in this country seem to understand how to properly pack insects for transportation. Our experience here has been a sad one when we have loaned specimens for study. Our collection of Sesiidæ was destroyed in this way.—HENRY SKINNER.

Doings of Societies.

A regular stated meeting of the Feldman Collecting Social was held May 15th, at the residence of Mr. H. W. Wenzel, 1523 South 13th Street. President Mr. Charles W. Johnson in the chair.

Professor Smith again spoke about the mosquitoes which he had previously mentioned and stated the following new facts: All the specimens from the pitcher plants were *Aedes* instead of *Culex* as he first thought, and therefore all of the preceding observations should be referred to *Aedes*. The two species which he raised from his pitcher plants were *Aedes fuscus* and *A. sapphirinus*. These are both new to New Jersey and have only been found in the pitcher plants. He spoke of the larvæ of an *Aedes* which he examined, which had two anal flaps showing a complete network of tracheæ and which up to the last stage were used in breathing. These larvæ are able to stay under water some time if the water is clear, but if it is foul or muddy they must come to the top frequently, and if the water becomes too foul the larvæ die. He also spoke of another lot of mosquito larvæ he had received, which are only found in spring holes. This one is different in all stages from *Aedes*, and he thought that they must have passed the winter in the larva state. They are very lively, going to the bottom at the least sign or shadow, this being a protection for them, as they are yellow; and when they go to the bottom it is difficult to distinguish them from the mud which is there. They also have to protect themselves from the larva of many other insects which are found in these spring holes, while the larvæ of *Aedes* are protected by the pitcher plants in which very few

insects are found. Out of about sixty specimens of *Aedes* he did not think he had a single male unless they resemble the females very closely.

He spoke about the different resting positions of mosquitoes, and stated that it was different in each genus, and also noted that the spines on the larvæ were different in each genus, and they might be used as a means of classification. He said it would be a good thing for entomologists to take note of the insects found in pitcher plants, so that some knowledge could be had of the inhabitants. He spoke of the lepidopterous larva which spins a web, which is so perfectly water proof that it prevents any water from getting in, and when the water dries up that is already there the larvæ proceed to eat into the plant.

Mr. Wenzel spoke again about the subaquatic *Pselaphids* mentioned at the last meeting. He said that down at Anglesea, New Jersey, the tide has been very high, and the place where he had collected these before was covered with about a foot of water, but the next morning at low tide he went there and under a large log which he turned over found a large number of *Pselaphids* which did not seem to be effected by the submersion. Some of these were found in at least four inches of water. Mr. Johnson said this might account for the distribution, as they could cling to logs under the water and be carried to different parts of the coast.

Mr. Wenzel recorded *Dromius atriceps* taken at Anglesea, N. J., May 5, 1901, as a new species for New Jersey. He spoke about *Cychrus elevatus* which he had taken around Anglesea. The eleven specimens which were taken were unicolorous, while the inland species have a metallic lustre.

Dr. Skinner stated that at Westville, New Jersey, May 5th, he found quite a number of specimens of *Acmaeodera culta* in which all the maculations were white, while those in the collections he had examined were orange. Mr. Wenzel said he thought they most likely turn yellow within a short time after death. Mr. Wenzel also mentioned finding this species in the oak, and said that after reaching the adult stage they are found on different plants and said this was the case in a number of other species.

Mr. Daecke spoke about a spider he had received which was running over the water, and while being chased it went under the water a number of times. He also showed a box of odd specimens which he had collected recently, and among which were some very good things, especially the following: *Neurocordulia uhleri*, a female of which he had taken at Millville, New Jersey, April 29th, and on May 5th had seen about twenty-five, eight of which he captured. The date of their appearance seems to run from April 29th to May 5th. Only two specimens of this species were previously known. He recorded *Tetragoneuria spinosa* taken at Clementon, N. J., May 3rd, as new to New Jersey; also *Zabrotes subnitens* from Manumuskin, N. J., May 5th, which is a very rare species.

WM. R. REINICK, *Secretary*.

The fifteenth annual meeting of the Harris Club was held at 35 Court Street, Boston, on the evening of Friday, March 15th. Interesting exhibits of cocoons of different types were made by Messrs. Morse, Low and Hall. Devices for protecting collections from the entrance of museum pests were discussed at length. Mr. Low showed an aberrant specimen of *Attacus cecropia*, in which the outer third of each wing is of a creamy buff, without the usual dark markings.

The sixteenth regular meeting was held at the same place on Saturday, April 13th. Messrs. Low, Higbee and Newcomb displayed interesting series of variant Lepidoptera. Mr. Denton showed a folding net of new design. A committee was appointed to draw up a set of directions for mounting insects, in order to secure uniformity in the club collections.

Above notes are taken from the records of A. P. Hall, temporary secretary.

W. L. W. FIELD, *Secretary*.

A meeting of the American Entomological Society was held April 25th, Dr. P. P. Calvert, President, in the chair. Fourteen persons present. Mr. Wenzel exhibited specimens of the wood of *Rhus typhina* (staghorn sumach), and *Rhus radicans* (poison ivy). These pieces of wood were infested with two species of *Scolytus*. The species found in the staghorn sumach penetrates the bark and the pith, while the one in the poison

ivy infests the bark only. The species have not been determined with certainty by the speaker. He also collected *Dysmerus basalis* Casey—was found in the poison ivy. This is the first record for this vicinity. Dr. Calvert said the genus *Argia* was, perhaps, the most difficult to study among the Odonata. It occurs in North and South America, but the headquarters is found in Tropical America. De Selys and Hagen in 1865 published a paper on the genus. They used in classification the modifications of the superior sector of the wing. The difference in these sectors was illustrated by the speaker, who said he had a large amount of material for study and he found the characters laid down by De Selys and Hagen had failed entirely. The appendages were considered to be the only reliable characters to use for classificatory purposes. The colors were also investigated and were thought to be of considerable value where large series were available for study. Mr. Wenzel spoke of the distribution of Pselaphidæ and Scydmaenidæ on Five-mile Beach, New Jersey. The difference between the dune fauna and the salt meadow was explained. The dunes make a line of demarcation between the faunæ. Some species were found on logs submerged in water.

HENRY SKINNER, M. D., *Secretary*.

A regular stated meeting of the Newark Entomological Society was held Sunday, April 14th, 3 p. m., at Turn Hall, fifteen persons being present, President Buchholtz in the chair.

The members present voted to hold the next meeting in May, outdoors, and Paterson was the place selected.

Feralia jocosa was reported as more plentiful than ever, the season being two weeks in advance of usual time.

GEORGE STORTZ, *Secretary pro tem*.

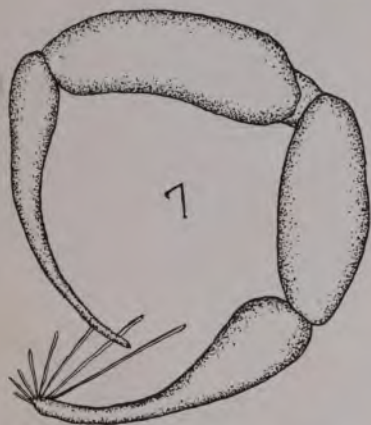
OBITUARY.

Mr. T. G. Priddey died suddenly on April 25th at his home in Toronto, Canada. He was in his 56th year, and was a well-known collector of insects, particularly Lepidoptera. He had planned another collecting trip to South Florida this season.

We regret to announce the death of Prof. Otto Luggger, State Entomologist of Minnesota.



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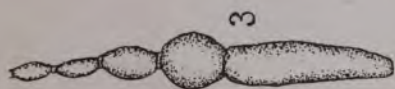
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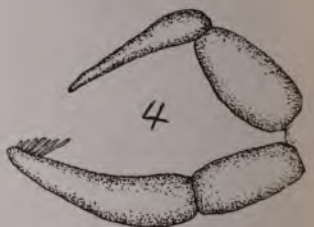
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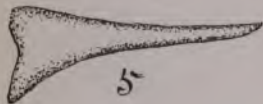
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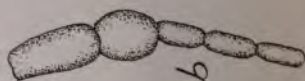
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AMERICAN PSYCHODIDÆ (KINCAID).

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XII. SEPTEMBER, 1901. No. 7.

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Notes on American Psychodidae.

By TREVOR KINCAID, University of Washington.

***Psychoda alternata* Say.**

This species is evidently quite widely distributed, as specimens have been received from Pullman, in the eastern part of Washington, where they were collected by Prof. C. V. Piper, and no doubt occur elsewhere on the Pacific coast, although none have yet been taken by the writer in Western Washington.

***Psychoda superba* Banks.**

Psychoda superba Banks. Canadian Entomologist, xxvi, p. 332 (1894).

Originally described by Mr. Banks, from Long Island, N. Y. Specimens of this species have been obtained from Battle Creek, Mich., where they were collected by Prof. J. M. Aldrich.

***Psychoda cinerea* Banks.**

Psychoda cinerea Banks. Canadian Entomologist, xxvi, p. 331 (1894).

Psychoda pacifica Kincaid. ENTOMOLOGICAL NEWS, viii, p. 143 (1897).

An opportunity was recently afforded the writer to examine specimens of *Psychoda cinerea*, which were described by Mr. Banks, from Long Island, N. Y. In 1897 the writer described a psychodid from Washington as *Psychoda pacifica*. At the time it was recognized that the latter was closely allied to *cinerea*, and careful comparison leads to the conclusion that the differential characters are not sufficiently stable to warrant its retention as a distinct species. It is evident that we have in this case an example of a very widespread and variable species, with a range extending from the Atlantic to the Pacific, and from California to Alaska. A careful comparison of *P. cinerea* with the common European forms, *P. phalaenoides* Linné and *P. albipennis* Zetterstedt, would be of interest, as although probably not identical with either of these the relationship is evidently quite close.

***Pericoma ocellaris* Meigen.**

Some time since Dr. Hough sent the writer specimens of a psychodid collected by him in Maine. Since it differed from the described American forms, it was at first supposed to be new to science, but it was subsequently found to agree in all except a few superficial details with the European *Pericoma ocellaris* Meigen. This latter species has several striking peculiarities, the most remarkable being certain secondary sexual characters. In the male the basal joint of the antenna is greatly elongated, forming nearly one-third the entire length of this organ, the second joint is large and globular, while the third joint bears near its apex an oval scar, from which arises a dense sinuous tuft of hair. In the female the basal joint is of more normal length and the tuft of hair is absent from the third joint.

The principal difference between the American and European forms is in the arrangement of the hair patches upon the wings and other superficial details. Hence it has been decided to distinguish the American form as follows :

***Pericoma ocellaris* var *americana* n. var.**

♀. Length 2 mm.—Body brown, clothed with brown hair, except upon the dorsal arc of the thorax, which bears a dense vestiture of long white hair. Wings ovate, more than twice as long as broad, apex bluntly

rounded and terminating close beneath the end of the first simple vein; anterior bifurcation a little nearer the base of the wing than the posterior one. Vestiture of wings brown, variegated with white as follows: A large patch near the base on the anterior margin, a sinuous band crossing the wing from the end of the third longitudinal vein to the end of the seventh, a small patch at the tips of the second, third and fourth longitudinal veins. Fringe brown, variegated with white as follows: A large patch near the base on the anterior margin, a small patch at tips of first to third longitudinal veins, a patch on the posterior margin extending from the tip of the fourth vein to the tip of the seventh, and a small patch at the end of the ninth vein. Legs clothed with brown hair and scales, with several annulations of white upon the tarsi. Antennæ a little longer than the width of the wing, 16-jointed; basal joint cylindrical, four times as long as thick; second joint large, globular; third joint much smaller than second, ovate; fourth to sixteenth joints slender, fusiform, gradually diminishing in size; the joints clothed with scattered hairs. Ventral plate shallowly emarginate at apex, terminating on each side in a well-marked lobe; ovipositor straight, acutely pointed.

♂.—Antennæ differing from those of the female in that the basal joint is relatively much longer, forming about one-fourth the length of the entire organ; and the third joint, which is oval, bears near its apex an oval scar, from which arises a dense tuft of hair, the tuft being strongly bent in the middle, so as to assume a sinuous appearance. Genitalia conspicuous. Inferior appendages two-jointed; basal joint stout, twice as long as broad; distal joint nearly twice as long as basal, slightly curved, tapering to apex, which bears a tuft of upwardly projecting clavate setæ. Superior appendages not quite so long as inferior, two-jointed; basal joint stout, cylindrical; distal joint nearly straight, slender, about equal in length to basal, tapering to a rather acute point.

Hab.—Maine. (Dr. G. DeN. Hough).

***Pericoma californica* n. sp.**

♀. Length 2 mm.—Body brown, clothed with long gray hair. Wings ovate, twice as long as broad, apex bluntly rounded and terminating close to the tip of the second simple vein; vestiture mottled with dark brown and white hair; patches of erect dark brown hair upon the bifurcation and at the apices of the veins; patch of white hair entad to the posterior bifurcation and another ectad to the anterior bifurcation; fringe gray; posterior bifurcation closest to base of wing, the juncture between the main vein and the lower branch of the fork obsolete; length of wing 2.5 mm. Antennæ not one-half as long as the breadth of the wing; 17-jointed; basal joint cylindrical, slightly longer than broad; second joint relatively large, globular; third to seventeenth joint nearly uniform in size, cylindrical, slightly narrowed at each end. Ventral plate squarish at base, finely ciliate, broadly and deeply emarginate at apex, the terminal lobes elongate, with bluntly rounded tips; ovipositor long and narrow, nearly straight.

♂.—Genitalia conspicuous, clothed with gray hair. Inferior appendages elongate, two-jointed; basal joint stout, twice as long as broad; second joint swollen at base, tapering to apex, which is rounded and bears on its dorsal surface a group of six or more stout flattened setæ. Superior appendages as long as inferior, two-jointed; basal joint stout, cylindrical; second joint slender, slightly enlarged basally, curving gently upwards.

Hab.—Congress Springs, California.

The above species is described from specimens reared from aquatic larvæ by Prof. Vernon L. Kellogg of Stanford University. The immature stages were described by Prof Kellogg in the ENTOMOLOGICAL NEWS for February, 1901.

EXPLANATION OF PLATE.

Figs. 1-5.—*Pericoma ocellaris* var. *americana*.

Fig. 1.—Ventral plate of female.

" 2.—Basal joints of male antenna.

" 3.—Basal joints of female antenna.

" 4.—Male genitalia.

" 5.—Ovipositor of female.

Figs. 6-9.—*Pericoma californica*.

Fig. 6.—Wing of female, denuded of hair.

" 7.—Male genitalia.

" 8.—Ventral plate of female.

" 9.—Basal joints of male antenna.

Contributions to the Odonata of Maine.—IV.

By (the late) F. L. HARVEY, Orono, Me.

(Continued from page 178.)

67. *Enallagma geminatum* Kellicott.

Taken in Bradley at Chemo Mills, July 26, 1899, on rocks in swift water. 8 specimens taken, 7 males and 1 female. One pair *in coitu*. Our specimens are larger than recorded by Kellicott, the abdomen being about 23 mm. long instead of 20 mm. The superior appendages seems to be longer, more slender, and the superior incision deeper, than shown in Kellicott's drawing. The specimens all have lateral black stripes on 8 and 9. The male *in coitu* has a blue spot and two small blue dots in the distal third of the dorsum of 7. All the other males have 7 entirely black. One specimen showed the blue

stripe on the thorax divided. Three specimens showed no dorsal interruption of the basal ring of 2, and the black of the dorsum was a distal spot with a tail. In another specimen the interruption was a hair-line of black. The black mark on the dorsum of 8 of the female which separates the blue spot on either side is shaped like a wine glass. The blue spots on 8 are crossed by black veins. So far as we know this species has not been taken before in New England. It flies close to the water and is hard to catch. We dipped the net over the rock on which the specimens rested.

56. *Enallagma Calverti* Morse ♀.

The ♂ of this species was described by Prof. Morse in *Psyche*, March, 1895, p. 208. As no mention is made of the ♀ we presume that it has not been described.* Below we give a description drawn up from an examination of many specimens. There are two color forms of the female of this species: (*a*) in which the color is bright blue on the abdomen, like that in the male; (*b*) in which the markings are of the same pattern and location as in the other, but so pale that they do not show well, and the abdomen appears, when casually examined, as bronzy throughout. The bronzy form may be teneral, although both forms were in copula at the same date and at the same pond with undoubted *E. calverti* males.

Total length 29-34 mm.—Hind wing 18-21 mm. The head and thorax marked like those of the male, only paler. Abdomen bronzy-black and blue. The first segment all blue, excepting an anterior transverse dorsal stripe, back of which on the median line is a small dot, near the posterior suture on the dorsum a small T-shaped spot, the short stem reaching the suture. Second segment a dorsal dark band running the whole length, narrowing in the middle, and posteriorly widening to an orbicular spot which joins the suture of the third segment. Viewed from above, segments 3 to 8 show twin blue spots anteriorly, which slope down the sides and involve the lower half. Those on the third reach beyond the middle, while those on 4-7 involve only one-sixth. On segment 8 the blue reaches more than half the length and the separating dark color much wider. The blue on the sides of 8 separated into two spots by a narrow projection of the dark color. Dorsum of 9 dark. Dorsum of 10 with narrow portion of blue of the sides showing each side.

* [A brief description of the female was published by Mr. E. B. Williamson in the *News* for May, 1900, page 455.]

68. ***Enallagma exsulans*** Hagen.

Abundant early in July along the Stillwater River at Orono (Harvey). This was taken, in 1891, at Manchester, by Miss Wadsworth, and is evidently common in the Penobscot valley, although we have previously overlooked it.

Subfamily 3, GOMPHINÆ.

26. ***Hagenius brevistylus*** Selys.

This species is quite common in Chemo Stream, Bradley, in July. We have taken about 40 specimens during the past two seasons, and they were nearly all males. They were flying up stream mostly, and nearly all were taken from a dead limb about four feet above and projecting over the water. They are not very wary, and one can readily wade up to them. Of those taken, one male showed a peculiar malformation of the left fore wing in which the cross vein of the triangle is horizontal and the cell in front of it curved; seven single cells on the distal side represent the double row in normal specimens; the double row of border cells below the triangle and the row of single cells at the anal angle are reversed. We took a single ♀ ovipositing in shallow, running water, Russell Stream, Northeast Carry, Aug. 29, 1899, and Aug. 28th a single old ♂ with tattered wings on a rock in the West Branch of the Penobscot, Northeast Carry. These are late dates for this species.

(To be continued.)

A Trip to Montreal.

BY H. H. NEWCOMB.

It was my good fortune to spend a couple of days in Montreal during the early part of last October. Previous to my coming I had written to several of the Lepidopterists of that beautiful city, and the cordiality of their replies filled me with eager anticipation; nor was I disappointed, for a more courteous and entertaining lot of collectors would be hard to find.

Soon after my arrival I was met by Mr. Albert F. Winn, the President of the Montreal Branch of the Entomological Society of Ontario, and by him advised how best to spend my time in order to see as many of the collections of Lepidoptera as possible during my short stay.

Bright and early the next morning I started for the Natural History Rooms on University Street. The collection there was not what it should be, I am sorry to say, being in poor condition and small in numbers; but, alas, how often we find the same state of affairs here in the States, where the Directors of Museums neglect Entomology for less important collections. As Mr. Alfred Griffin, the curator, is a very agreeable gentleman to meet, I felt repaid for my visit in spite of my disappointment at not seeing more "material."

McGill University is beautifully situated under the shadow of Mt. Royal. In the Redpath Museum, one of the handsome college buildings, are no less than four collections.

The D'Urban collection is in fair condition, considering its age, and consists entirely of North American material, and is contained in 9 drawers.

The Pearson collection fills 28 drawers. The insects are well spread, but are a mixed lot of Lepidoptera, though the greater part are North American.

The Bowles' collection is well arranged, and is kept in 39 cases with glass tops. As in the preceeding, North American Lepidoptera predominate. The Catocalæ are well represented, and among the varieties I noticed *Lepisesia flavofasciata* and *Hepialus thule*. The latter moth is strictly local and "flies between 8.10 and 8.25 on the evenings of July 11th, 12th and 13th," so I was informed by one of the enthusiasts.

Fourth and last is the Denton collection, which consists of 500 exotics, beautifully mounted in the Denton tablets. This makes a very handsome appearance, and is a great addition to the Museum.

By kindness of Mr. Winn, I next saw the collection of Mr. H. H. Lyman, who was in Europe at the time of my visit. This was indeed a magnificent collection of North American material. It was particularly rich in the genera *Argynnis* and *Chionobas*, and showed great care in mounting, labeling, etc. It occupies about 60 drawers.

The Montreal Branch held their monthly meeting one week earlier than the regular date, so that I might be present, a compliment which I very much appreciated. Before the meeting, which was held at Mr. Winn's residence, I had a hasty

view of his collection, which is an excellent one and in fine condition. The classification, mounting, labeling, etc., are first class, and it is, indeed, a pleasure to see such a well-cared for collection. It contained many rarities which space forbids me to enumerate. I must mention, however, a fine line of *H. thule*, of which I was fortunate enough to have one presented to me along with other "plunder" of hardly less importance. Mr. Winn's collection occupies about 50 drawers and represents North American fauna.

The meeting proved very interesting, there being nine members present, one of them my good friend, Dr. Fyles of Quebec, who made a special trip from that city in order to attend. Several papers were read and a good exhibit of specimens made. A collation followed, which added to the sociality of the affair.

The only other collection which I had time to see was that of Mr. Dwight Brainerd and his brother. Though not so large as some of the others, this collection is well worth seeing, as it is unique in many respects. It contains no exchanges; every specimen was taken by the owners. It is strictly local, with the exception of some material from Edgartown, Mass., where the Messrs. Brainerd have spent some of their vacations. The classification is the reverse of what we usually see; the lowest forms coming first in order and the last drawers of the cabinet containing the diurnals. With the specimens are a great many blown larvæ, bleached wings, ovæ and even frass, so that a high scientific value is attained, and the life histories of many insects seen at a glance.

It was with great regret that my two days were over—all too soon—but I shall always cherish pleasant memories of my visit to Montreal, and remember with pleasure the kindness of the members of the Montreal branch.

A Successful Failure.

BY ANNIE TRUMBULL SLOSSON.

I went again last winter to Miami, on Biscayne Bay, Florida, staying there from Christmas-eve till the first of April. I have never known as unfavorable a season for collecting in

that part of the country. There was no severe cold, no freezing weather such as sometimes visits that semi-tropical clime, described in hotel circulars and land companies' advertisements as "beyond the frost line." But we had day after day of chilly, cloudy weather, generally with high winds. Our evenings were shivery, and our nights so cold that one found an extra blanket comfortable. Now, Florida insects are very susceptible to changes in temperature; much more than are our hardy northern ones. In Franconia I have often taken Lepidoptera when the mercury was below 50°. In South Florida it is an exceptionally bold insect that ventures out when the temperature is lower than 65°. So I found all orders of insects very scarce. Even the proverbially unseeing pleasure tourist noticed and commented upon the absence of butterflies. And as for the few entomologists who came that way—well, I know that one at least, a man well known to all readers of the NEWS, a good collector and charming companion, used some very strong language in speaking of the scarcity of insect life at Miami this season. I think he said—or perhaps only implied—that he could capture more insects in Philadelphia during the winter than in the tropical country along Biscayne Bay. Well, I could hardly blame him. Day after day, week after week went by, and the dearth of insect life continued, while my spirits sank lower and lower and hope grew faint; and at the end of March, as I prepared to turn northward, I still considered the season a failure—entomologically, I mean. But now, that lovely white Miami, with her waving palms and blue waters, is far away, distance lends her usual enchantment, and I recall only the pleasant experiences, the interesting, if few, discoveries, which now seem to make my winter very near to a success, after all.

The most common shrub along the roadsides at Miami, near the shore and also far inland, is one of the Ulmaceæ, *Trema micrantha*. This grows from ten to twenty feet high, looks not unlike the Celtis or Hackberry, and has nettle-like leaves similar to those of Bœhmeria, insignificant, greenish flowers and very small, round, yellow fruit. In Chapman's Botany the only locality given for this shrub is "shell mounds in

Lastero Bay, South Florida." But, as I have said, it grows everywhere along Biscayne Bay. And, for some reason unknown to me, it is the favorite food plant and haunt of insects in all orders. Several years ago I found two fine *Halisodota* caterpillars feeding upon this shrub. They proved to be larvæ of *H. cinctipes*. I have never found any of these since that time until this last winter. The very first walk I took after my arrival—it was on Christmas-day—I found several of these handsome caterpillars in different stages, and they were to be seen occasionally from that time until February, and perhaps later. They fed well in confinement, spun the usual egg-shaped cocoons and emerged, between three and four weeks after pupation, perfect moths, closely resembling our northern *H. tessellata*. I have never seen these larvæ on any plant but the *Trema*. There were always, too, upon this shrub two tiny Jassids, *Typhlocybas* I think, brightly and daintily marked; and one day, as I swept my net over one of the bushes, a delicate green Capsid flew and lighted upon my sleeve. It was the most shadowy, fragile ghost of a Capsid, transparent and almost invisible as it rested on the pale green underside of the leaves, where I afterwards saw it. I took several of them. Prof. Uhler has given it the MS. name *Diaphania parvula*. One day, while hunting for this small creature, I came upon a colony of aphids. Among them and feeding upon them was what I felt sure was a Lycænid larva. It was of usual slug-like form, with small head. My excitement was intense. I took the leaf with the aphids and their devourer, placed them in a glass tumbler in my room and at once wrote to Dr. Skinner. Was *Feniseca tarquinius* found in South Florida, or did he know of any other insectivorous butterfly larva in this country? So I questioned him. Of course, our enthusiastic Aurelian was interested. He responded at once, urging me to spare no pains in bringing the larva to maturity and expressing hopes that I might find more specimens. Before the letter reached me I had discovered another colony of plant lice with a similar larva in its midst, and both my specimens had formed chrysalids—or what seemed to me such—odd little cases, light brown in color, which I did not examine very

closely. Long before I looked for transformation, the cases opened and there emerged—two flies! My curious Lycænid larvæ were only maggots of the dipterous genus *Baccha*, long known as aphidivorous. Do you wonder that I set this blunder down as one of my successes? Well, it was a discovery, of its kind. I learned a lesson, too, from the experience; and is not a lesson, if thoroughly learned, a sort of success?

But I found the genuine thing a little later—a real Lycænid caterpillar, though it was not feeding upon Aphidæ. It was a green, slug-like larva, looking silvery or frosted, because of the white, short bristles, which grew close together all over it. It was feeding on the leaves of the *Trema*, and continued to feed and thrive in captivity until it came to the imago state and became a fine male specimen of *Thecla martialis* Herr Sch. This is a West Indian species, which I was so fortunate as to add to our own lists a few years ago. As far as I know, its life history has never been recorded.

(To be continued.)

Letters from Thomas Say to John F. Melsheimer, 1816–1825.—V.

Philadelphia Nov^r 6th 1817.

Dear Sir

I sincerely thank you for the insects you sent me, I received them in the best possible order, & many of them were new to me, you are rich in the very interesting aquatic genera—For all these I will endeavour to make you some return by & by. In the mean time I would send you the first number of the *American Entomology*¹ if I could find any conveyance for it; sending it through the Post-office will be unnecessarily expensive, perhaps you can advise a better mode—It contains six coll^d plaates, besides an engraved title page & vignette, with about two sheets of letter press; the arrangement of the matter is upon the plan of *Donovan's British Insects* I will have

¹ The generally ascribed dates of publication of the *American Entomology* is 1824–'28. The work appeared in numbers, and, as is seen, the first appeared in 1817. In the preceding letter, dated April 27, 1817, Say speaks of the first number as not having been issued; inferentially it appeared between that date and that of the present letter.—W. J. F.

the pleasure to send you the numbers as they appear—The descriptions you will find are very brief, perhaps too much so, although accompanied by figures—I shall alter the plan somewhat for the future numbers—Great obscurity has crept into Natural History in consequence of a mistaken notion, that the character of an animal can be given in three or four words; you, no doubt, have had occasion to regret the brevity of description that has been indulged in by Linne, Fabricius &c, & will agree with me, that in many instances they are more generic than specific, so that several distinct species can with equal propriety be referred to a single trivial name; but naturalists are now beginning to profit by their own experience of the absurdity of this mode of procedure & I hope it will not be long, before in our text books we shall have such characters indicated, as shall be decisive—

Isoceros brunneus has been called by Latreille *Parandra brunea* & also *Parandra laevis*, has not De Geer in some part of his works named it *Attelabus laevis*? this synonym I have seen somewhere. It appears to have five joints to the tarsi, the addition [al] one is penultimate, & it is also worthy of remark that in *Cucujus* there is an appearance of a fifth joint at the base of the tarsus; in habit the two genera are widely distinct—will it not serve to connect the preceding family with this, in the same degree nearly, that *Uleiota* (*Brontes*) connects this family, with the *Cerambycini*.

It is with the greatest pleasure I learn your intention to communicate to me some observations on some of the genera of Insects, this I assure you will afford me the utmost satisfaction & I look for them with solicitude; I have made considerable advances in a distinct work which may be entitled *Descriptions of the Insects of North America*,² this is to be without plates, it is a work I have fixed particular attention upon, but it will occupy a considerable time & will be the product of much, & unremitted, labor.

Any observations you may make to me, with which I was not previously conversant, shall be most scrupulously recorded & placed in that work to your credit, & all those insects you have sent me, which I had not before seen, will of course be

² See footnote 1, page 176 of this volume.

noted there as yours—& your specific names as recorded in the "*Catalogue of Insects of Pennsylvania*" shall be preserved in every instance that your numbers (which I have always retained attached to the Insects you sent me) in my Cabinet, will enable me so to do, with the exception only of such names, as have been applied to other insects of the same genus—

I thank you much for the handsome manner, in which you have been pleased to express your approbation, of my attempt at descriptions of our Fresh Water & Land Shells, I was urged to do it by finding them entirely overlooked in the publications of late authors; Several shells have been since added to the list, which I will communicate to you in the "*Journal of the Academy of Natural Science*" a small work we are issuing here, from the Society that I informed you of, when I had the pleasure to be at your house. This little work I will be careful in future to send to you as early as it appears, though I do not know how long it may continue to be issued; you will see in the "Journal" that I have been describing the Crustacea of our waters; but my dear sir, I assure you that Shells and Crustacea are but secondary things with me, INSECTS are the great objects, of my attention, I hope to be able to renounce everything else & attend to them only—

I sent for some of the books you informed me of, to Paris, & have received intelligence from my correspondent there of their having been shipped, so that they may be expected every day.

I have made out a monograph of the *Cicindela* of N. America which will soon be published with figures, it shall be sent to you as soon as it appears, There are twelve species described. I would give you here a further account of it but my paper warns me to stop—

Most respectfully I remain your friend
& Obedt Servt

Thomas Say.

I yesterday sent you a copy, through the Post-office, of the fifth number of the *Journal of the Academy of Natural Sciences*—Tomorrow I will send the Sixth number—I hope they may be duly received

T Say

A New *Chionobas* from Maine.

By H. H. NEWCOMB.

Chionobas katahdin n. sp.

Male. Size and general character of *semidea*, but with the outer third of wings much lighter in color. Primaries with one to four small spots parallel to the outer margin. Edge of costa and fringes concolorous. Undersides of inferiors have a wide band, much as in *taygete*. The female has the same general character as the male, but on the inferiors below there is a row of five spots. Described from a number of specimens taken by the writer on Mount Katahdin. A detailed description and account of the species will appear in the October NEWS.

A New Anthomyid Injurious to Lupines.

By D. W. COQUILLET.

Phorbia lupini n. sp

♂.—Black, the halteres yellow, frontal vitta reddish brown, middle and hind tibiae largely yellowish brown; eyes contiguous, about eight pairs of frontal bristles, antennae very broad, noticeably shorter than the face, the third joint only slightly longer than the second, pubescence of the arista very short, proboscis short and rather robust; thorax thinly brownish pruinose, the posterior portion gray, pruinose and marked with a dark median vitta, the sides and pleura densely light gray pruinose; scutellum brownish pruinose, margined with light grey; abdomen narrow, nearly linear, its five segments of nearly an equal length, dark gray pruinose and marked with an indefinite, blackish median vitta, the venter not furnished with processes, its hairs rather long and of nearly an equal length, hypopygium rather large, its first segment densely grey pruinose, the second polished, bearing many rather long hairs; front tibiae each bearing a bristle near the middle of the posterior side, a blunt pointed one at the apex on the posterior side besides a few normal bristles elsewhere at the apex; middle femora ciliate, with long bristles on the basal half of the posterior under side, and with very short ones on the apical half; middle tibiae each bearing a bristle near two-thirds the length of the anterior outer side, one slightly higher on the posterior outer side, one near the middle and another near three-fourths the length of the inner side; hind femora ciliate almost the entire length of their under side, with long bristles of nearly an equal length; hind tibiae ciliate, with about seventeen almost straight, rather long bristles on nearly the entire length of the posterior inner side, with from four to six on the anterior inner side, from five to seven on the anterior outer side, and the same number on the posterior outer side, besides

those at the apex ; tarsi not furnished with bristly hairs on the upper side of the first joint ; wings hyaline, costal spine shorter than the small cross-vein, third and fourth veins converging toward their apices, penultimate section of the fourth about three-fourths as long as the last section.

♀.—A pair of præocellar bristles, thorax densely yellowish gray pruinose and marked with three indistinct black vittæ, abdomen oval, the first segment shorter than the remaining four, front tibiæ each bearing an additional bristle, situated below the middle of the anterior side, no blunt pointed bristle at the apex (middle legs wanting), hind tibiæ bare on the posterior inner side, bearing two bristles on the median third of the anterior inner side, four on the posterior outer side and five on the anterior outer side, otherwise as in the male, except the sexual characters.

Length 5 mm.

Two males and one female, bred February 20, 1901, by Mr. Carroll Fowler, from stems of *Lupinus albus*, received from Los Angeles, Cal. Type No. 5746, U. S. Nat. Mus.

Near *platyura* Meigen (= *fusciceps* Zett., = *cilicrura* Rond.), but readily distinguished by the long bristles on the under side of the hind femora.

A New Species of *Dichopetala*.

By JAMES A. G. REHN.

The specimen here described as a new species was recently referred by the writer to *D. mexicana* Brunner, but a more recent examination has convinced him that its affinities are closer to *D. emarginata* Brunner, but still well removed from that.

***Dichopetala pulchra* n. sp.**

1900. *Dichopetala mexicana* Rehn (not of Brunner), Trans. Amer. Ent. Soc., xxvii, p. 88.

Type : female ; Rio Cocula, Guerrero, Mexico, May 12, 1898. Collected by Otis W. Barrett.

Allied to *D. emarginata* Brunner, with which species it agrees in the form of the subgenital plate, but differing mainly in the color pattern which approaches *D. mexicana*.

Size medium. Head subglobose ; the vertex produced into a spine-like process, which is separated from the front by a narrow diastema ; front, clypeus and labrium glabrous ; eyes small, globose. Pronotum centrally constricted ; the anterior margin slightly arcuate, the posterior truncate ;

central sulcus deeply impressed on the upper portion of the lateral lobes which are much longer than deep, the lower margin sinuate, the anterior and posterior angles broadly rounded. Tegmina very abbreviate, just appearing from under the pronotum. Abdomen very heavy and corpulent. Limbs very slender; posterior femora and tibiæ very long, the spines on the external margin of the latter numbering 29. Ovipositor rather stout, the superior and inferior margins serrato-dentate, the former for about one-third and the latter about one-fourth of the total length. Subgenital plate with a moderately deep triangular incision. General color above brownish purple, extending from the tip of the vertex to the last segment of the abdomen; the sides of head, pronotum and abdomen and lower surface pale yellowish green. Front, clypeus and labrum whitish. Pronotum with the general tint of the disk bordered by a broken black line, which is continued more or less distinctly upon the abdominal segments, this being outlined externally by a line of pea green. Limbs greenish tinged with reddish on the anterior and median femora, the distal extremities of the femora and both the distal and proximal extremities of the tibiæ black, the posterior femora being basally variegated with black on the outer face. Ovipositor green, the superior margin and tip somewhat infusate.

Measurements.

Total length	20. mm.
Length of pronotum	4.5 mm.
Length of ovipositor	11.5 mm.
Length of ant. femora	11. mm.
Length of post. femora	24.5 mm.
Length of post. tibiæ	29. mm.

A Peculiar New Type of Halictine Bees.

By T. D. A. COCKERELL.

Halictus conanthi, sp. n.—♀. Length about 4 mm.; black, with a decided green lustre on head, thorax and abdomen, or it might better be described as very dark green, the surface throughout having a sort of satiny sheen; head elongate-oval, shaped much as in the *Proctotrypia* genus *Dissomphalus* (♀), with the short antennæ placed very low down, at least twice as far from the ocelli as from the mouth; clypeus prominent, piceous, shining; a fringe of shining, yellowish hairs beneath its margin; mandibles whitish, with ferruginous ends; maxillary palpi long and slender; flagellum pale ferruginous beneath, somewhat darker above; tegulæ hyaline, not punctured; wings very short, clear, beautifully iridescent, nervures and stigma sepia-brown; first recurrent nervure received by second submarginal cell not much beyond its middle; femora black, knees, tibia and tarsi light ferruginous; abdomen long and narrow, but

flattened, with a conspicuous apical bunch of fuscous hairs. With a compound microscope, the abdomen is seen to be minutely transversely striate; the head and thorax are tessellate; the front is distinctly, but very sparsely punctured; the cheeks, legs, etc., are covered with plumose white hairs.

Hab.—Mesilla, New Mexico, July 17 (*Ckll.*) One at flowers of *Conanthus hispidus*; it may be that the narrow head serves to facilitate the getting of nectar from the flower, but it is extremely peculiar. The insect may be referred to a new subgenus *Conanthalictus*, characterized by the peculiarities italicized in the above description, and also by the large semilunar enclosure of the metathorax, coarsely granular and dull, with a distinct rim.

Sphæridium scarabæoides Linn. in Northern and Central New York.—I was interested in Mr. Pearsall's note in the May NEWS regarding the occurrence of this species in the Catskills. In the NEWS for September, '98, I recorded its occurrence in St. Lawrence County in the vicinity of Potsdam, the first specimens having been taken in the summer of '96. The species is evidently well established there, as I have taken numbers of the beetles each succeeding season.

On May 4th last, while passing through a cow pasture just outside of Ithaca, I made a short search for *Sphæridium*, and in the course of a few minutes located several—enough to satisfy me that the species is well established in this locality.

Like *Aphodius fimetarius* Linn., with which I find it associated to a considerable extent, this species may have been introduced from Europe into the eastern part of the United States or Canada, from which point it is now spreading.

It would be interesting to know how far west and south the species is found. It is a strong flier, so its range could be rapidly extended were the conditions favorable.—C. O. HOUGHTON, Ithaca, N. Y.

EGGS OF *Arachnis zuni*.—On the 27th of May a large female moth (*A. zuni*) was taken at Las Vegas, N. M., and confined in a pasteboard box. Four days after about two dozen eggs were discovered firmly glued to the side of the box.

The eggs are nearly globular, slightly pointed at the micropyle. They are about $\frac{1}{2}$ mm. in diameter, and of a light bluish gray. The surface appears smooth and shiny when examined with an ordinary lens, but is found to be irregularly roughened when examined with a compound microscope.—WILMATTE PORTER COCKERELL.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., SEPTEMBER, 1901.

The fact that several serious and often fatal diseases are disseminated by insects has called general attention to Entomology as a scientific study. The entomologist of not many years ago was looked upon by the public as a sort of harmless lunatic. At the present time Entomology is one of the most important studies known. We venture the opinion that in case of war between two nations, fairly evenly matched as to men and money, that the nation recognizing the importance of entomology and bacteriology and giving proper attention to these matters would come out victorious. In other words, it would not be a question of armament.

The English, in their present war with the little African Republics, have had over 100,000 men invalidated. The cause was undoubtedly flies and the *Bacillus typhosus*. In our war with Spain we lost 8000 men by disease. What is the lesson? Do away with political appointments and nepotism. Don't depend on curing the disease (therapeutics). Here is a recipe for death: Several commanding officers of a regiment that know as much about camp sanitation and hygiene as the horses they ride. Several doctors—political appointees—with the ink scarcely dry on their diplomas; uncovered latrines; no policing of the camp; excrement everywhere; calvary near by; house-flies by the million; deaths from typhoid fever by the thousand. Has the lesson been learned even now?

Entomological Literature.

COMPILED BY P. P. CALVERT.

Under the above head it is intended to mention papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology will not be noted. Contributions to the anatomy, physiology and embryology of insects, however, relating to American or exotic species, will be recorded. The numbers in **HEAVY-FACED TYPE** refer to the journals, as numbered in the following list, in which the papers are published; * denotes that the paper in question contains descriptions of new North American forms. Titles of all articles in foreign languages are translated into English; usually such articles are written in the same language as the title of the journal containing them, but when such articles are in other languages than English, French, German or Italian, this fact is indicated in brackets.

1. Proceedings of the Academy of Natural Sciences of Philadelphia, 1901, part i, May.—**3.** The American Naturalist, Boston, '01.—**4.** The Canadian Entomologist, London, Ont., '01.—**5.** Psyche, Cambridge, Mass., '01.—**6.** Journal of the New York Entomological Society, June, '01.—**7.** U. S. Department of Agriculture, Washington; publications of.—**9.** The Entomologist, London, '01.—**11.** The Annals and Magazine of Natural History, London, June, '01.—**14.** Proceedings of the Zoological Society of London, '00; iv, April 1, '01.—**21.** The Entomologist's Record, London, '01.—**33.** Denkschriften d. Kaiserlichen Akademie der Wissenschaften, Mathematisch-Naturwissenschaftliche Classe, lxxviii, Vienna, '00, rec'd. June 10, '01.—**35.** Annales, Société Entomologique de Belgique, xlv, 5, Brussels, May 29, '01.—**37.** Le Naturaliste Canadien, Chicoutimi, Quebec, June, '01.—**40.** Societas Entomologica, Zürich-Hottingen, '01.—**60.** Comunicaciones, Museo Nacional de Buenos Aires, i, 8, March 18, '01.—**64.** Annalen, k. k. Naturhistorischen Hofmuseums, xv, 2, Vienna, '00; rec'd. June 10, '01.—**74.** Naturwissenschaftliche Wochenschrift, Berlin, May 26, '01.—**81.** Biologisches Centralblatt, Erlangen, '01.—**103.** Proceedings, California Academy of Sciences, Zoology, iii, San Francisco, '01.—**108.** The Agricultural Journal, Cape Town, '01.—**150.** Bulletins, New Hampshire Agric. Exper. Station, Durham, N. H., '01.—**151.** Atti, R. Accademia di Scienze Fisiche e Matematiche (2) x, Naples, '01.

THE GENERAL SUBJECT.—**Annandale, N.** Observations on the habits and natural surroundings of insects made during the Skeat Expedition to the Malay Peninsula 1899-1900. [Flower-like Mantidæ, Harpagid pupa, alarming color and attitude, sounds produced by insects, luminosity, use of spines, use of prolongation of head in Fulgoridæ].—**14. Balint, S.** Intracellular arrangement of neurofibrillæ in faceted eyes of insects, Sitzungsberichte d. medicinisch-naturwiss. Section, Siebenburgischen Museumvereins, xxiv, Kolozsvart, 1899. Rec'd. Jun. 1, '01.—**Brunetti, E.** On labeling insects, **9**, June, **4**, July.—**Chapman, T. A.** Names and definitions of hybrids, **9**, July.—**Issel, R.** Essay on the Italian thermal fauna, Atti, R. Accademia di Scienze di Torino,

xxxvi, 1901.—**Langley, S. P.**, and **Very, F. W.** On the cheapest form of light [fire-fly], 3 pls., Smithsonian Miscellaneous Collections 1258, Washington, '01.—**de Meijere, J. C. H.** On the last joint of the legs of Arthropods, 8 pls., Zoologische Jahrbücher, Abth. für Anatomie, xiv, 3, Jena, April 24, '01.—**Müller, A.** Phycomyceten und Ascomyceten. Untersuchungen aus Brasilien. Jena. Fischer. 1901. [Cordyceps, etc. on insects].—**Osten Sacken, C. R.** An introduction to the record of my life work in entomology. Cambridge: Printed at the University Press. 1901.—**Plateau, F.** New researches on the relations between insects and flowers: Do Syrphids admire the colors of flowers? Memoires, Société Zoologique de France, xiii, Paris, 1900.—**Rudow.** Birds and Insects, Insekten Börse, Leipsic, June 6, 13, '01.—**Walton, L. B.** The metathoracic pterygota of the Hexapoda and their relation to the wings, figs., 3, May.—**Weeks, A. C.** Suggestions for collecting insects with least injury [in Proceedings of the New York Ent. Society], 6.

ECONOMIC ENTOMOLOGY.—**Anon.** Catalogue of Collections of pests and insecticides. Commission of Agricultural Parasitology of the Secretary for Public Promotion. Mexico. 1901.—**Chittenden, F. H.** Insect enemies of the white pine, figs., Bulletin 22, Division of Forestry, 7, 1899; Rec'd. June 10, 1901.—**Colledge, W. R.** Notes on a malaria-carrying mosquito (*Anopheles pictus*), 4 pls., Proceedings, Royal Society of Queensland, xvi, Brisbane, '01.—**Frers, C.** Locust extermination [in the Argentine Republic], 108, May 23.—**Koningsberger, J.**, and **Zimmermann, A.** The animal enemies of coffee culture in Java, ii [in Dutch]. Mededeelingen uit s'Lands Plantentuin, xlv. Batavia, 1901.—**Künckel d'Herculais, J.** Locust extermination [translation from the Spanish of a report to the Argentine Government], 108, May 9.—**Kuwana, S. I.** The San José scale in Japan, Contributions to Biology from the Hopkins Seaside Laboratory of Leland Stanford, Jr., University, xxv, Palo Alto, Cali., '01.—**Lowe, V. H.**, and **Parrott, P. J.** San José scale investigations, Bulletins 193, 194, New York Agric. Exper. Station, Geneva, N. Y., Dec., '00.—**Mally, F. W.** The Mexican cotton-boll weevil, figs., Farmers' Bulletin, No. 130, 7, '01.—**Malmejac, F.** Destruction of ants, La Nature, Paris, June 15, '01.—**Manrique, J. G.** Extinction of the locust, possibility of the propagation of fungus epidemic, 108, May 23, June 6.—**di Mattei, E.** Malarial prophylaxis with protection of man against mosquitoes, Atti, Accademia Gioenia di Scienze Naturali in Catania (5) xiii, 1900. Rec'd. June 10, '01.—**Nuttall, G. H. F.** On the question of priority with regard to certain discoveries upon the etiology of malarial diseases, Quarterly Journal of Microscopical Science, London, May, '01.—**Rogers, L.** The relationship of the water-supply, water-logging, and the distribution of Anopheles mosquitoes respectively, to the prevalence of malaria north of Calcutta, Journal, Asiatic Society of Bengal, lxi, ii, 4. Calcutta, Jan. 22, '01. Rec'd. June 14.—**Sasaki, C.** On the Japanese species allied to the San José scale in America, 1 pl., Annotationes Zoologicae Japonenses, iii, 4.

Tokyo, April 30, '01.—**Slingerland, M. V.** A glance into the past and future, and some of the insect episodes of 1900, figs. Reprint from Proceedings of the Forty-sixth Annual Meeting of the Western New York Horticultural Society, Jan. 23 and 24, 1901, Rochester, 1901; three unusual strawberry pests, figs., Bulletin 190, Cornell University Agric. Exper. Station, Ithaca, New York, May, '01; further experiments against the peach-tree borer, figs. Bulletin 192 of the same, June.—**Sternberg, G. M.** The transmission of yellow fever by mosquitoes, Popular Science Monthly, New York, July, '01.—**Tryon, H.** Pineapple mealy bug [in Queensland], 103, April 25.—**Weber, L.** Insects as parasites, producers and distributors of disease in man and higher animals, Abhandlungen u. Bericht xlv, Verein für Naturkunde zu Kassel, 1900.—**Webster, F. M.** An experiment in the importation of beneficial insects, 4, June.—**Weed, C. M.** Insect record for 1900, 150, Bulletin 81, Feb.—**Wilcox, E. V.** Abstracts of recent papers, Experiment Station Record, xii, 10, 7, '01.—**Wolff, M.** The habits of the intermediate host of malaria according to the observations of Grassi, figs., 81, May 1.—**Xambeu.** Habits and metamorphoses of *Anobium panicum* L. Le Naturaliste, Paris, June 1, '01.

ARACHNIDA.—**Nalepa, A.** To knowledge of the genus *Eriophyes*, Sieb. em. Nal., 5 pls., 33.—**Police, G.** Researches on the nervous system of *Euscorpius italicus*, 1 pl., 151.—**Rainbow, W. J.** Notes on the architecture, nesting habits and life histories of Australian Araneidæ, etc. Records of the Australian Museum, iv, 1, Sydney, Mar. 29, '01.

MYRIOPODA.—**Attems, C.** Classification of the Polydesmidæ, ii, 6 pls., * 33.—**Mauck, A. V.** On the swarming and variation in a myriapod (*Fontaria virginienensis*), 3, June.

COLLEMBOLA.—**Folsom, J. W.** Review of the Collembolan genus *Neelus* and description of *N. minutus* n. sp.* 1 pl., 5, July.

ORTHOPTERA.—**Bordas, L.** The defensive or odoriferous glands of roaches, Comptes Rendus, l'Academie des Sciences, Paris, June 3, '01.—**Morse, A. P.** The Xiphidiini of the Pacific coast,*, 4, July.—**Pierautoni, U.** Contributions to the study of the stomatogastric nervous system of saltatory Orthoptera, 1 pl., 151.—**Rehn, J. A. G.** The Linnean genus *Gryllus*—additions and corrections, 4, June.

NEUROPTERA.—**Higgins, H. T.** The development and comparative structures of the gizzard in the Odonata zygoptera, 3 pls., 1.—**McClendon, J. F.** A new species of *Chrysopa* from Texas, fig., 5, June.—**Sondheim, M.** Perceptive ability of a dragonfly larva, 81, May 15.

HEMIPTERA.—**Berg, C.** Substitution of a generic name of Hemiptera, 60.—**Breddin, G.** New Coreidæ and Pyrrhacoridae, 40, May 15; new neotropical bugs, 40, June 15.—**Cholodkovsky, N.** Aphidological communications, figs., Zoologischer Anzeiger, Leipsic, May 13, '01.—**Cockerell, T. D. A.** New Coccidæ from Mexico,*, 4,

July; a new Coccid on roots of *Rubus*,* 5, June; a new *Ceroplastes* (fam. Coccidæ), 60.—**Coleman, G. A.** The redwood mealy bug (*Dactylopius sequoia*, sp. n.),* 1 pl., 103, May 29, '01.—**Distant, W. L.** Rhynchotal notes, x. Heteroptera, fam. Lygæidæ, 11; revision of the Rhynchota belonging to the family Pentatomidæ in the Hope Collection at Oxford, 2 pls., 14.—**Handlirsch, A.** To knowledge of the stridulatory organs of the Rhynchota, figs., 1 pl., 64.—**Hempel, S.** Descriptions of Brazilian Coccidæ, 11.—**King, G. B.** The Coccidæ of British North America, 4, June, July.—**Kirkaldy, G. W.** On the nomenclature of the genera of the Rhynchota, Heteroptera auchenorrhynchous Homoptera, 9, June.—**Kuwana, S. I.** New and little known California Coccidæ,* 2 pls., 103, May 28, '01.—**Montgomery, T. H., Jr.** Further studies on the chromosomes of the Hemiptera Heteroptera, 1 pl., 1.—**Osborn, H.**—New genus including two new species of Saldidæ,* 4, June.—**Patterson, R. W.** Notes on *Cerococcus*, 3 pls., 103, May 24, '01.—**Sundwick, E. E.** On Psylla wax, psyllostearyl-alcohol and psyllostearyl acid (psylla-alcohol, psylla-acid), iii, Hoppe-Seyler's Zeitschrift für Physiologische Chemie, xxxii, 3, 4. 6 Strassburg, April 27, '01.—**Woodworth, C. W.** Note on the respiration of *Aleurodes citri*, 4, June.

COLEOPTERA.—**Beaulieu, G.** The Scarbæidæ of the province of Quebec (cont.), 37.—**Berg, C.** Some new or known Argentine species of the genus *Epipedonota* Sol., 60.—**Brauns, H.** A new termitophilous Aphodide from Orange Free State, 1 pl., 64.—**Fauvel, A.** Description of a new species of Staphylinid from Tierra Fuego, 60.—**Kerremans, C.** Considerations on the Buprestidæ [Phylogeny, Mimicry, etc.], 35.—**Waterhouse, C. O.** Two new genera of Coleoptera belonging to the Cupesidæ and Prionidæ, 11.—**Webster, F. M.** Insectary rearings of two species of *Mordellistena*, 4, June.

DIPTERA.—**Barford, H.** The development of bot-flies according to the latest researches, 74.—**Brues, C. T.** Two new myrmecophilous genera of aberrant Phoridæ from Texas,* figs., 3, May.—**Chagnon, G.** Preliminary studies on the Syrphidæ of the province of Quebec (cont.), 37.—**Kellogg, V. L.** Phagocytosis in the postembryonic development of the Diptera, figs., 3, May; studies for students, i. The anatomy of the larva of the giant crane-fly (*Holorusia rubiginosa*), figs., 5, June.—**Kulagin, N.** The structure of the female sexual organs in *Culex* and *Anopheles*, 1 pl. Zeitschrift für wissenschaftliche Zoologie, lxi, 4, Leipsic, May 28, '01.—**Melauder, A. L.** Gynandro-morphism in a new species of *Hilara*,* figs., 5, June.

LEPIDOPTERA.—**Anon.** The [John Henry] Leech Collection [of Lepidoptera] presented to the nation [British Museum], 9, June.—**Beutenmüller, W.** The earlier stages of *Sphinx gordius*, *Ceratonía amyntor*, and *Smerinthus geminatus* (3 papers), 6; descriptions of three Lepidopterous larvæ, 6.—**Buckler, W.** (the late). The larvæ of the British Butterflies and Moths, vol. ix. Edited by G. T. Porritt. London.

Ray Society volume for 1899. 1901. 17 colored pls.—**Caspari II, W.** Some remarks on the theme 'Persecution of butterflies by birds,' 40, June 1.—**Coquillett, D. W.** Descriptions of three Lepidopterous larvæ, 6.—**Dognin, P.** New Heterocera from South America, 35.—**Dyar, H. G.** Further about the type of *Acronycta*, 4, July; life histories of North American Geometridæ, xxiii, 5, July; note on the larva of *Psaphidia thaxterianus*, 6; Diagnosis of a new Arctian, * 6.—**Fernald, C. H.** New Pyralidæ and Tortricidæ from Palm Beach, Florida, * 6.—**Fiske, W. F.** An annotated catalogue of the Butterflies of New Hampshire, 150, Technical Bulletin No. 1.—**French, G. H.** More about the red-winged Catocalæ, 4, July.—**Frings, C.** Temperature experiments in the year 1900, 40, May 15 to June 1.—**Grinnell, F., Jr.** A new variety of *Lycæna amyntula*, with other notes, * 4, July.—**Grote, A. R.** Some original descriptions by Guenée, 4, June.—**Hinds, W. E.** Notes on the life-history of *Alsophila pometaria* Peck. (Fall Canker-worm), 1 pl., figs., 4, July.—**König, A.** Butterfly-caterpillars in water, Mittheilungen der Section für Naturkunde, Oesterreichischen Touristen-Club, xii, Vienna, 1900.—**Prideaux, R. M.** Some notes on sexual dimorphism observed in the scaling of *Colias edusa*, 1 pl., 21, May 15.—**Schaus, W.** New species of Heterocera from tropical America, ii, * 6.—**Sharpe, Emily M. B.** A Monograph of the Genus *Teracolus*, part ix. London. L. Reeve & Co., 1901. Rec'd. June, '01.—**Soule, C. G.** Notes on the mating of *Attacus cecropia* and others, 5, July.—**Swainson, E. M.** Notes on lepidopterous larvæ from Jamaica, 6.—**Tutt, J. W.** Migration and dispersal of insects: Lepidoptera (cont.), 21, May 15 to July 1.—**Weeks, A. C.** An aberration of *Papilio philenor*, 1 pl., 6.—**Wolley Dod, F. H.** Preliminary list of the Macro-lepidoptera of Alberta, N. W. T. (cont.), 4, June.

HYMENOPTERA.—**Cockerell, T. D. A.** Descriptions of new bees collected by Mr. H. H. Smith in Brazil, ii, 1; new and little-known bees from Nebraska, * 9, July; variation in a bee, Nature, London, June 13, '01.—**Emery, C.** Notes on the Dorylinæ, * *Bulletino, Societa Entomologica Italiano*, xxxiii, 1, Florence, May 31, '01.—**Fox, W. J.** Two new Bembecine wasps, * 6.—**Petrunkewitsch, A.** Parthenogenesis in the honey bee, 74.—**Smith, J. B.** Notes on some digger bees, ii, 3 pls., 6.—**Wheeler, W. M.** The compound and mixed nests of American ants, i, * figs., 3, June; *Microdon* larvæ in *Pseudomyrma* nests, fig., 5, July.

Monograph of the Sesiidæ of America, North of Mexico. By William Beutenmüller. Vol. I, pt. vi, *Memoirs of the American Museum of Natural History*, March, 1901. This great work treats of moths that are usually poorly represented in collections and difficult to determine as but few species were figured. Mr. Beutenmüller has given us an exhaustive and painstaking work, and one that must prove invaluable to all students of these natural objects. The typography of the work leaves noth-

ing to be desired; the text cuts are excellent and the figures of the moths themselves appear up to the standard. This is undoubtedly one of the best monographs ever written in regard to American insects, and the only thing we can conscientiously criticise is the general character of plates xxxiv to xxxvi—they are exceedingly poor.—H. S.

Mosquitoes: how they live; how they carry disease; how they are classified; how they may be destroyed. By L. O. Howard, Ph.D., Department of Agriculture, Washington, D. C. New York, McClure, Phillips & Co. 12 mo. \$1.50 net, postage 14 cents. This work of 240 pages and fifty illustrations covers the subject in an excellent manner. It is written in a popular way, yet scientific accuracy is never sacrificed. We particularly like the sub-headings of the chapters where the very natural questions concerning mosquitoes are answered. It is quite a relief to see a work like this after reading the entomological part of some of the papers on malaria in our prominent medical journals. This book should have a large sale as it is on a subject that is of interest to almost everyone. Physicians whose knowledge of entomology is usually very meagre would greatly profit by its perusal. It is the style of book one would expect from an accomplished entomologist, and Dr. Howard is to be congratulated on placing an interesting subject before the public in such a pleasing and scientifically accurate manner.—H. S.

NATURE BIOGRAPHIES:—"The Lives of Some Everyday Butterflies Moths, Grasshoppers and Flies." By Clarence Moores Weed. With 150 photographic illustrations by the author. Doubleday, Page & Co., New York. This work of 162 pages is gotten out in nice style, and many of the illustrations are excellent. The work is a popular one and can't fail to be useful. We particularly like the first chapter and its illustrations called "The Making of a Butterfly." We do not like the figures of dragonflies on the cover and see no use for such monstrosities. They would have been just as artistic and would just as well have reached a popular vein if they had looked more like dragonflies, and if the forked legs and forked tails had been drawn true to nature. There is plenty of room for improvement in the photographic part of the work. Some of the figures of the larva of the "viceroy butterfly" are poor. Fig. 43 and 44 show nothing and we take the author's word for it that there is something there. Fig. 58 is poor. We doubt that the people for whom the work is intended could see anything in Fig. 59. It is much easier to pin butterflies to plants and photograph them than to do the work under more difficult conditions, and we find that insect photographers often do this, but neglect to say so or infer that they were taken otherwise. Fig. 177 illustrates a dragonfly and shows an utter lack of detail. There is much chance for improvement in this respect. Fig. 136 is very poor, and also shows where improvement could be made. The book is written in a very happy vein and by one who knows his subject well. Photogra-

phy is going to popularize the study of insects as we long ago predicted. Dr. Weed has done wonderfully well and deserves great credit for being one of the first in the photographic field. We have pointed out some poor results in photography simply that advancement may be made. We are firm believers in the method and don't expect perfection at once. We can illustrate where this book will find its utility. A gentleman came into the Academy and picking it up, opened it at pages 120 and 121. One page, 120, is a figure of a *Luna* moth, and on 121 a figure of a dragonfly. He asked if the moth changed (transformed) into the dragonfly.—H. S.

THE INSECT BOOK.—We have received for review the kind of book we have hoped for and looked for these many years. It is also the book we shall recommend to the many students, teachers and young persons who so frequently come to us and ask, "What book can I get that will tell me what I wish to know about insects." No single work can cover such a vast field as that of Entomology, but the "Insect Book," by Dr. Howard, is the "open sesame" to further knowledge and lays the foundation and points out the way. The book is of the same size and general appearance as "Holland's Butterfly Book," and is a "Popular Account of the Bees, Wasps, Ants, Grasshoppers, Flies and other North American Insects, exclusive of the Butterflies, Moths and Beetles, with full Life Histories, Tables and Bibliographies." By Leland O. Howard, Ph. D., Chief of the Division of Entomology, U. S. Department of Agriculture. The publishers are Doubleday, Page & Co., 34 Union Square, New York. Sent postpaid to any address on approval. Price \$3.00 net. The work contains 429 pages, including index and bibliography. There are 300 valuable text cuts, 16 full page plates in color and 32 in black and white. The plates as a whole are excellent, and demonstrate what the future holds in photographic methods. There is a lack of detail in some of the figures, and in some cases the colors are failures, especially in the metallic blues of the wings in the wasps which come out red. This is mentioned to call attention to the fact that the photographer, by careful study and use of the proper lenses, can do much better. We predict the day when any other method will be a thing of the past for any but very minute insects. Many of the figures are wonderfully beautiful, and we do not believe any artist, living or dead, could produce them as well. There is mechanical accuracy, exact reproduction of texture, faultless neuration and other good features. There are a few errors. The sexes of *Mutilla occidentalis* are incorrect, and the name of fig. 22, plate v, is wrong. The introduction is very thoughtful and suggestive, and the author says "if I had not thought it was needed I never should have written it." We can understand this feeling. Dr. Howard knows the importance of the study, and he takes this means of interesting people in it. The beginner is usually appalled by a dry scientific treatise, and the details that appeal to the devotee only discourage the person who at first only feels the poetry of nature, the

balmy air of Summer, the drone of the bee and the lazy sail of the graceful butterfly. A feature of the work is the full treatment of life-histories, so far as they are known. Attention is called to the lack of knowledge on this point in regard to so many species. Systematic work has advanced to such a position that there will be more time to devote to biological studies, and the great awakening of interest in Entomology will induce more persons to take up the neglected aspects of the study. We do not believe any one in America was so well qualified to undertake such a work as Dr. Howard, and we do not see how the work could have been better done, considering the time devoted to its preparation and the difficulty of selecting subjects for treatment. Few people, not entomologists, realize the vastness of the study and the number of kinds of insects.

We would like to go into detail in regard to the work, but space will not permit. The work is necessary in the library of every entomologist, and we can also say that we hope it may find its way into every home in America.—H. S.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

ATTACHED to the bases of the under side of the tibiæ of the first pair of legs of *Platysamia cecropia* ♂ we find a peculiar organ or process. It seems to be attached by a small joint, and the process points upward and outward. It is over an eighth inch in length and wing-shaped, the inner side being curved and the outer straight. It is a secondary male sexual character. What is it named and what is its function?—HENRY SKINNER.

THE advantages for the study of insects afforded by the Biological Laboratory of the Brooklyn Institute of Arts and Sciences, at Cold Spring Harbor, Long Island.—The region of Cold Spring Harbor affords remarkable facilities for the study of insects, owing to the great variety of the plants to be found there, and to the topographical features of the landscape.

Large areas are covered with hard-wood forests, interspersed with isolated clusters of pine or other coniferous trees, and there are also wide open meadows in every state of preservation. Some covered with weeds and thistles, the favorite haunts of diurnal insects; while others are grassy or partially covered with young trees, affording excellent feeding grounds for larvæ.

The region of Cold Spring Harbor is especially remarkable, however, for its variety of hill and valley, and for the abundance of fresh water streams and ponds, as well as salt and brackish marsh land. Altogether a similar area containing greater varieties of environmental conditions could hardly be found. One may collect along the sandy, muddy or

rocky beaches, and in the course of a quarter of an hour thereafter, be in the midst of a landscape that, from its rich vegetation, suggests anything but the sea-shore.

The insect fauna of the region is interesting, as it contains many of those forms which extend southward from colder regions and northward from the warm Southern States.

The Biological Laboratory of the Brooklyn Institute of Arts and Sciences is situated on the shore of Cold Spring Harbor, and one of the chief objects of this Laboratory is to afford every possible facility for the study of land animals and plants. The opportunities for the study of insects will be especially good during the coming summer, for laboratory and lecture work upon the subject will be pursued, and every opportunity will be given for research work upon this group, the study of which has already lead to the founding of such corollaries of the theory of natural selection as those of mimicry, protective resemblance and warning coloration.—ALFRED G. MAYER.

Doings of Societies.

A meeting of the Feldman Collecting Social was held Wednesday evening, June 19, at the residence of Mr. H. W. Wenzel, 1523 S. 13th Street; 12 members present. Visitor, Mr. H. Viereck.

The Vice-Present, Mr. Charles Boerner, in the chair. Professor Smith exhibited specimens of *Cysteodemus armatus*, collected in alcohol and pinned dry. Those that were collected in alcohol were black, like the specimens seen in most collections, while those pinned dry were covered with an orange bloom. In speaking of the little knowledge we have of the desert fauna, Professor Smith mentioned a new species of Noctuid which he had received from that region which was entirely different from anything known, and read the following extracts from a letter he had received from a collector in that district:

"From April 8th until June 1st I travelled with pack animals through one of the most difficult, and I may say dangerous, desert regions in the United States. Men perish there almost every year for want of water, as there are many places of from twenty to fifty miles between waters, and in many cases the water is uncertain or very bad when you do get to it.

"This being my first trip on this desert, my time has been taken up with hunting feed and water for the animals and camp use. On more than one occasion I dug for water in what we call tanks—that is a hole in the bed rock of a wash which retains water after rain. After working and shovelling for three or four hours I was fortunate to find water in most places, but sometimes only enough for the stock and three or four gallons to camp on over night, and a twenty-mile drive for water the next day.

"We (a party of three) were looking for placer gold principally. Between hunting for gold and water and travelling I was so worn out that I did not capture as many moths as I should have done.

"The Lepidoptera and many of the Coleoptera are only found on the deserts during certain seasons. I find some species are confined to a small territory, while others are more widely distributed. I also find different species on different elevations. On this trip I have been from an altitude of 264 ft. below to 8,000 ft. above sea level. My present camp is about 7,500 ft. above, and is too cold for night flying moths here, as we have a little frost every night. Moths are only attracted to light here during the dark of the moon, as we have no cloudy nights."

Professor Smith had sent some alcoholic specimens of mosquitoes to Mr. Johnson, who had determined them as *Aedes fuscus*, but later sending dry specimens to Mr. Johnson, he stated that they were probably a new species, which Mr. Henshaw corroborated. The maturing of these mosquitoes depends very much upon the location of the plants; those in the shade taking longer than those in the sun, and the larval life seem to last from October to June, which is longer than in other species. Professor Smith thought that the species which breed in the pitcher plants and is only found there does not bite and has but one brood.

Mr. Laurent exhibited a series of the eggs of *Mantis religiosa* and *Tenodera sinensis*, which showed a variety of shapes.

Mr. Daecke spoke upon and exhibited a *Mantis* which he was trying to raise.

Dr. Castle exhibited a box of Coleoptera which he had collected this Spring, among which was *Dysphaga tenuipes*, taken at Angora, Pa.,—a very rare species.

Mr. Daecke mentioned finding the larva of *Haploa lecontei* which he had taken upon leaf buds of wild cherry at Laurel Springs, N. J., April 22, 1901. The larva changed into the pupa state May 5th and emerged June 5th. The food plant of this insect was not known before. Mr. Daecke also showed a new insect net which he had designed. Mr. Seiss mentioned dissecting a specimen of the common brown bat, whose stomach was full of mosquitoes. Mr. Wenzel exhibited a box of *Lachnosterna* taken recently in New Jersey, about twenty species in all, some of which were very rare. Mr. Laurent spoke about the manner in which the broods of butterflies seem to overlap in Florida, and he thought there were more broods in the southern part than in the northern. Mr. Viereck reported finding *Plenoculus davisii* at North Woodbury, New Jersey, as a species new to New Jersey.

WM. R. REINICK, *Secretary*.

A meeting of the Entomological Section of the Academy of Natural Sciences of Philadelphia was held May 23d. Mr. Philip Laurent, Director, presiding. Thirteen persons were present. Mr. Rehn exhibited specimens of Mexican Locustidæ belonging to the genus *Stilpnochlora*. Mr. Johnson exhibited a collection of European Diptera which he used for comparative study. Attention was drawn to the method of mounting on pith. Dr. Skinner exhibited egg masses of *Mantis religiosa* which had been received from Prof. Slingerland. He also showed two species of Coleoptera reared from a book in the library of the College of Physicians of Philadelphia. One species was *Sitodrepa panicea*, and the other not determined. Mr. Laurent made brief reference to his trip to Miami, Florida, and said he would have more to say about it when he had his material studied. He did not consider Miami a very good place to collect. Some rare species may be found, and,

perhaps, some that are new ; but he did not recommend it as a good place for the entomologist. Between February 15th and May 4th there was but one good rain. Water was a very scarce commodity. He took between three and four thousand specimens. Nine species of Sphingidæ were captured.

HENRY SKINNER, *Recorder*.

The seventeenth regular meeting of the Harris Club was held at 35 Court St., Boston, on the evening of May 17, 1901. Eighteen members were present.

Mr. R. W. Denton showed a simple device for rearing Lepidoptera. The larvæ are kept in an ordinary lantern globe, across the lower part of which is fastened a piece of cardboard, perforated to allow stems of food-plants to pass through into a vessel of water below. The upper aperture is covered by a bit of netting.

Mr. W. D. Denton spoke of the advantages derived from dyeing butterfly nets green.

Mr. Morse mentioned finding Tineidæ breeding in great numbers in a box of dog biscuit. Mr. Bolster said that the "buffalo bug" had been found to infest flour barrels.

Several members joined in a discussion of methods of rearing the larvæ of dragonflies in aquaria.

Mr. Newcomb suggested the selection of a single genus for special consideration at each meeting. The plan was adopted, and the lepidopterous genus *Colias* chosen for the June program.

Mr. W. D. Denton displayed some insects in "transparent mounts." Mr. J. H. Rogers, Jr., showed some recent captures, and told of his discovery that young larvæ of the Gypsy moth can live for more than a week without food.

W. L. W. FIELD, *Secretary*.

OTTO LUGGER.

Otto Lugger, State Entomologist of Minnesota, who died May 21st, from pneumonia, after a very short illness, was one of the most widely known of the many Americans of German

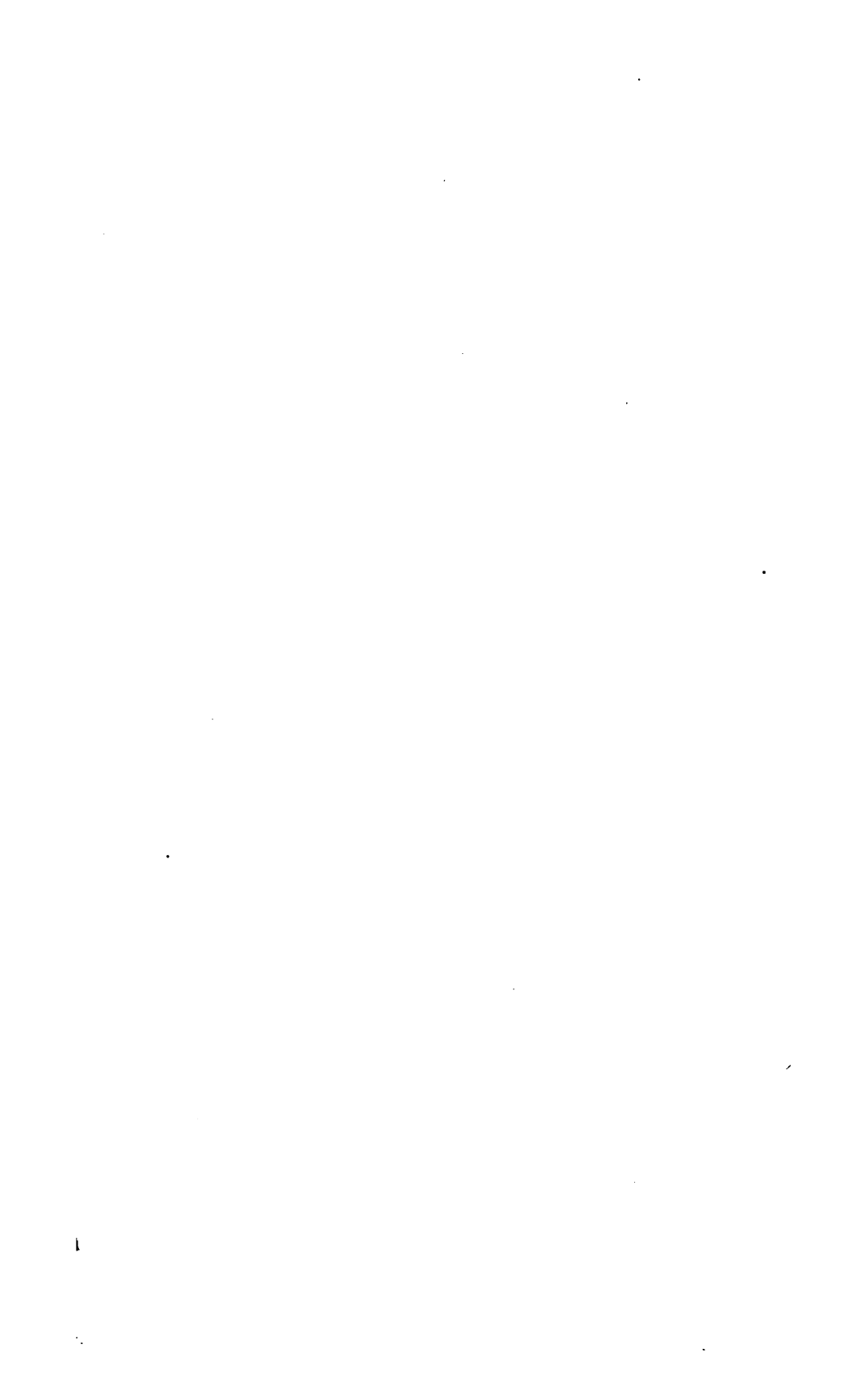
birth who have obtained high scientific reputation in this country. He was born at Hagen, Westphalia, September 16, 1844. His father was a professor of chemistry in a Prussian university. Luggger was educated in Hagen, and in 1864 became a lieutenant of cavalry in the Prussian army. In 1865 he came with his parents to the United States and secured a position with the engineer corps of the army, and for two years was engaged in the survey of the Great Lakes. He had always been interested in entomology, and collected specimens while engaged in his engineering work. He became acquainted with the late C. V. Riley, who at that time was occupied in newspaper work in Chicago, and when, in 1868, Riley was appointed State Entomologist of Missouri, Luggger went with him as his assistant. During the years 1868 to 1875, when Riley established his great reputation as economic entomologist and published eight of the nine annual reports which brought him lasting fame, Luggger remained his quiet, unassuming, self-sacrificing and devoted helper. In 1875 he married Lina Krokmann and went to Baltimore, where he became the curator of the Maryland Academy of Sciences and naturalist of the city parks. In 1885 he was appointed assistant in the Division of Entomology of the U. S. Department of Agriculture, remaining in Washington until 1888, when he was appointed entomologist to the State Agricultural Experiment Station of Minnesota, publishing his first bulletin in this new office July 3, 1888.

His first entomological experience in the State of Minnesota was one of great interest and importance, and his vigorous and intelligent action in the face of a great emergency fixed his standing as a most useful officer firmly in the minds of the Minnesota farmers. An enormous swarm of the Rocky Mountain locust or western migratory grasshopper had settled down in Ottertail County. By Luggger's advice and energetic field work, backed as he was by a public spirited and intelligent Governor (Hon. W. R. Merriam, now director of the U. S. Census), who personally guaranteed the funds necessary for the campaign, the hordes of destructive insects were annihilated and great damage was averted.

From that time to the time of his death, nearly thirteen years, Lugger's work was most active; his publications were frequent, and he gained the profound respect of his constituents and of the scientific men of the country. His bibliography, covering about thirty titles of record, comprises almost exclusively articles on economic entomology, but he was by no means a one-sided naturalist. He was a good botanist and published several papers concerning plant diseases, notably his article on the black rust or summer rust (Bulletin 64, Univ. Minn. Agric. Exp. Station).

Some years ago he began the publication of a series of large papers, which, when brought together, would have formed an elaborate treatise on the entomology of Minnesota. The parts which had been published were an extensive paper on the parasites of man and domestic animals (Bull. 48, 1896, Minn. Agric. Exp. Sta., pp. 72-270, figs. 187, plates 16); the Orthoptera of Minnesota (Bull. 55, 1897, pp. 91-386, figs. 187); the Lepidoptera of Minnesota (Bull. 61, 1898, pp. 55-334, figs. 237, plates 24); the Coleoptera of Minnesota (Bull. 66, 1899, pp. 85-331, figs. 249, plates 6), and the Hemiptera of Minnesota (Bull. 69, 1900, pp. 1-259, figs. 200, plates 15). It is a great pity that Lugger did not live to complete this series, since the elaborate numbers were profusely illustrated, and were prepared with great care and written in a most interesting style. At the time of his death he was preparing the part on Diptera, in which he intended possibly to include the Neuropteroids. It is greatly to be hoped that his manuscript was sufficiently advanced to permit its publication.

Aside from his scientific ability, Lugger was a man of admirable qualities. His wide information, his agreeable personality and his keen sense of humor made him one of the most delightful companions I have ever known. Many of his stories and humorous sayings are current among entomologists all over the United States, and his loss will be felt for many years to come. He leaves a widow and two children—a daughter, Mrs. Linnea Clarke and a son, Humboldt Lugger, the latter now living in Kentucky.—L. O. HOWARD, in *Science*, N. S., Vol. XIII, No. 338.





LOUIS SCHNEIDER.

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AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

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Chionobas Katahdin AND AN ACCOUNT OF ITS DISCOVERY.

BY H. H. NEWCOMB.

Chionobas katahdin n. sp. Male.—Expanse 1.90 inches. Body dark brown. Antennæ dark, ringed with yellow; club lighter; upper side: wings thinly scaled, of a dusky brown color, except the outer third, which is suffused with yellowish brown. The outer edge of both wings is clearly defined by a distinct black line, outside of which there is a fringe of fine hairs of a light brownish shade, except opposite the end of each vein, where they are nearly black. The primaries have a small dark spot finely pupilled with white near the apex, though occasional specimens have three or four spots, while in rare cases there is an entire absence of maculation. The dark sexual dash usual in this genus is fairly prominent. On the underside the primaries are much the same as above except that they are somewhat paler, and at the apex and along the costa there is a thick sprinkling of dark scales. The inferiors beneath are strongly marked and have a dark irregular band extending across the middle third of the wing, bounded on each side by a black line varying in width, outside of which is a band of gray, becoming darker as it extends outward toward the edge, the whole wing being strongly mottled.

Female.—Expanse 2 inches. Markings much the same as in the male, except that the yellowish brown of the outer third of the wings is more

pronounced, and there are usually two or three spots on the upper side of the primaries, though these may vary from 1 to 4. On the inferiors beneath there is a row of five white dots parallel to the outer edge of the wing.

Hab.—Mt. Katahdin, Maine, at an elevation of 4250 to 5000 ft. above the sea-level.

Described from forty-three males and twenty females taken by the writer at the above locality in the latter part of June of this year.

Owing to the accuracy of the figures on the plate a more lengthy description seems unnecessary. In general appearance *C. katahdin* somewhat resembles *C. crambis* Freyer. On the upper side it is perhaps as near *C. polixenes* Fabricius as any other butterfly of this genus, while on the underside the wide band on the inferiors is much the same as in *C. taygete* Hubner. In the plate the two upper and the two lower figures represent the most constant forms of male and female, while the central figures represent the extreme variations.

An account of the trip which resulted in the discovery of this new species would not be out of place at the present time. The idea was first suggested by Mr. P. G. Bolster, vice-president of the Harris Club, that Mt. Katahdin might be a productive field for an Entomologist. This is a locality that seems to have been neglected in the past, probably on account of its inaccessibility. Mt. Katahdin rises out of the pine forests of northern Maine to a height of over 5000 ft. Its vast bulk is between seven and eight miles in length. I cannot do better than to quote from Mr. Churchill's* article in *Rhodora* for June. He says: "Mt. Katahdin is still surrounded by an immense wilderness, traversed only by lakes and rivers and by roads or trails, which in summer, at least, are too rough to attract the tourist; and Mr. Hamlin's observations are true to-day that 'the mountain is so inaccessible that practically it is remote even to New Englanders.'" It is over one hundred

*Mr. Jos. R. Churchill was one of a party of five botanists who ascended the mountain in July, 1900, the others being Dr. George G. Kennedy, Merritt L. Fernald, Emile F. Williams and J. Franklin Collins, all of Massachusetts.

miles north of Bangor and some thirty-six miles from the nearest railway.

Under promise of good trout fishing we induced two piscatorially inclined friends, Messrs. W. F. Lamont and J. W. Gough, to make up our little party of four, all of us near neighbors in Boston, which met at Bangor on the morning of June 24th, and took the train for Staceyville, one hundred miles to the north. Little did we reckon on the hardships in store for us; the weary miles of walking over the worst roads on earth, the struggle through the virgin forest with forty pounds of luggage apiece on our backs, and last but not least the daily conflict with black-flies, whose bites mixed with sun-burn makes a combination never to be forgotten.

Leaving Staceyville at noon with our baggage piled high on a buckboard drawn by two stout horses, we plunged into the forest. The weather was cloudy with a tendency to rain, but about four o'clock the sun came out just as we reached a clearing in the woods. Here, while the horses were having a short rest, I began my first collecting, taking *A. atlantis*, *P. nycteis*, *M. harrisii* and *L. arthemis*, besides others of less account. We passed that night in a comfortable camp at a place called "Lunksoos," on the east branch of the Penobscot River. This camp, which is a substantial two-story log-house, is run by Mr. and Mrs. "Ed" Rogers; and it was here we were joined by Percy Hussey who was to be our guide for the next two weeks while we were in the wilderness. We had accomplished about eight miles the first day.

The next morning bright and early we resumed our journey. A log-jam in the river caused some delay, but finally we got across on the ferry. This latter is a flat old "scow," sunk almost to the water's edge; but in spite of its looks, it proved able to float the whole outfit, horses, buckboard and all across the river. The "tote-road" lies along the western bank of the Wissataquoik River, through an open and rather barren country caused by numerous forest fires. The collecting was fair, but as we kept pushing on as fast as possible there was not an over abundance of time to spare. We walked most of the time, the roads being too rough to permit of riding on the buckboard with any degree of comfort.

L. arthemis was extremely plentiful. It was a common occurrence to take two or three at a time, and once I counted sixteen in a space not larger than a man's hand. Besides getting a good supply of these, I took *P. oleracea* and *C. mandan*, as well as duplicates of some of those netted the first day. At dusk we reached City Camp, a collection of log houses used by lumbermen in the winter time, having scored sixteen more miles on our second day. After a hearty supper, which included a fine mess of trout caught by our fishermen, we "turned in" on the hard floor, rolled up in our blankets.

By noon the next day we made "McLeod" Camp, having placed 5½ miles more to our credit. Now commenced the hardest part of our journey. The buckboard could proceed no further, so our food, blankets and such articles of clothing as we considered indispensable were packed on one of the horses. A hard climb of about two miles brought us to the limit of travel for even a horse, with three more miles yet to do before we should reach Camp Kennedy in the great South Basin of Mt. Katahdin. These last miles were along a trail, which we followed by the blaze-marks on the trees, over rocks and stumps and moss-covered pit-falls which lined the way. The heat was most oppressive, yet we had to stumble along as best we could, carrying our goods ourselves, urged on by the ever-increasing viciousness of the black-flies. We finally staggered into camp about seven o'clock, nearly "done up." And what a discouraging sight met our gaze! The roof had collapsed, and the rains and snows had played havoc with the interior—in fact it was so far destroyed that we could not use it at all, but were obliged to build a "lean-to" in which to sleep; and when, after about two hours' work, we lay down on our aromatic beds of fresh fir boughs, we needed no lullaby other than the murmur of a distant mountain torrent to induce that refreshing slumber that comes after a hard day's tramp in the woods.

We were now in a great basin or amphitheatre, some two miles long by one in width, at an elevation of about 3000 ft. above the sea-level, heavily wooded and surrounded on all sides but the east by the precipitous walls of Mt. Katahdin, whose granite peaks towered over 2000 ft. above us.

The next day, Thursday, we were too tired to attempt the top, so we contented ourselves with an exploring expedition to the "Chimney." This is a deep crevice between "Pomola" (as the southeastern slope is called) and the main part of the mountain. Here we found snow-fields, some of them 200 ft. in extent, and while our friends at home were in the grasp of a hot wave we were indulging in a game of snowball. Hardly any insects were seen this day except a few Coleoptera and Hymenoptera, which were promptly turned over to Bolster, whose collecting is confined to these two orders. Friday dawned with a promise of a fair day, so we decided to climb the mountain. We pushed our way through the forest for about a mile, following the bed of a mountain brook, dry at this season of the year, until we arrived at the foot of a great land slide a thousand feet in length and rising at an angle of from fifty to sixty degrees. Up this we climbed, stopping often to rest and breathe, until we reached the table-land. This is a vast area of over a hundred acres, at an elevation of about 4250 ft., rising gradually towards the North Peak on the right and the West Peak on the left, and perhaps three-fourths of a mile in width. It is covered for the most part with vegetation, though there are a great many loose rocks and boulders scattered about. Mountain hemlock, low and scrubby, grows over about two-thirds of it, while the rest is carpeted with sedge, mountain cranberry, crowberry and moss. Just before we reached the table-land the clouds had enveloped the whole top of the mountains; therefore we were able to explore but a small portion. Several times, however, the sun made ineffectual attempts to shine through the dense fog; and then it was that we beheld *Chionobas katahdin*, a small brown creature fluttering close to the ground. By dint of perseverance I managed to capture eleven of these butterflies before descending the slide. I did not realize that I had discovered a new species, but thought it might be a variety of *C. semidea*, which is found under similar conditions on Mt. Washington, 161 miles to the southwest; and it was not until I had submitted specimens to Dr. Skinner and other Entomologists, that I felt sure that I had been so fortunate.

Saturday, the 29th, proved to be the best day of all. Leaving the two fishermen to tend camp, Bolster and I, together with the tireless "Percy," made the ascent of the West Peak, the highest point of Mt. Katahdin, estimated to be 5215 ft. above the sea. At the summit were three cairns which literally swarmed with insects, blown up from below. Bolster fairly revelled in them, bottling them by the score. As I am only interested in Lepidoptera, I must leave it to him to tell the readers of the NEWS about his captures. I returned to the table-land and devoted the day to *C. katahdin*, taking in all forty-nine specimens; but I found it no easy matter to net them, as they are very wary, and as soon as they take wing the wind, which is always blowing a small-sized gale up there, carries them far away. When at rest on the ground with their wings closed, it is almost impossible to distinguish them from the moss; the coloring of the underside of the wings being so similar that the mimicry is nearly perfect. Rain in this region is a daily occurrence, and this day proved no exception, consequently we forced to return early in the afternoon.

Our provisions were getting low, so Lamont and Gough started back for City Camp on Sunday morning; and as Bolster was somewhat under the weather, I was left to go up the mountain alone. My trip was not very successful, as the wind was so strong (I could hardly stand up against it) that on my return I had but three specimens of *katahdin* as the *net* result of a day's hard work. There is no need to worry about this little colony of butterflies becoming exterminated by collectors. The trip is too difficult and expensive to tempt many Lepidopterists; and after arriving on the ground the weather conditions are too uncertain to guarantee success. There are days at a time when the clouds are so dense over the mountain that ascent is impossible, and then one cannot get a third of the butterflies he sees, they are so quick to take alarm and be carried out of reach by the breeze. I consider that I was particularly fortunate to go on the mountain at just the right time and be favored with weather that made collecting possible.

Moths were not plentiful at any stage of our journey, and space will not permit of a list with this account.

The return journey was made without especial interest. "Emerson," our driver, met us promptly with the buckboard; and what with fishing and "butterflying" the journey seemed short indeed. I added some good specimens of *D. portlandia* to my captures, besides many more common "flies."

In all we were gone fifteen days from Boston, and were glad to get back to civilization and away from the black-flies, and sleep once more in a real bed.

In conclusion I wish to thank Mr. Emile F. Williams for much valuable information, the result of his trip to Mt Katahdin in 1900, and Dr. Henry Skinner for his kindness in helping me to determine that I had a new species in *Chionobas katahdin*.

The Greenhouse Coccidae, I.

By GEO. B. KING, Lawrence, Mass.

The introduction of scale insects by the means of man, that is to say by the importation of greenhouse plants, seems to be increasing yearly, and a list of such species as have already been recorded or known to infest greenhouses I have thought should be brought together and published for the benefit of Economic Entomologists and Horticulturists. My residence in a city where there is no library treating upon or in any way assisting one in Entomological research work has compelled me to depend upon my own private library. It should therefore be clearly understood that the following list of greenhouse coccids is far from being complete; and it is to be hoped that more interest will be taken in this very important branch of Economic Entomology. Any information concerning these pests in greenhouses will be thankfully received by me, and due credit given. Prof. Cockerell some two or three years ago kindly sent me a list of greenhouse coccids recorded by Signoret to inhabit greenhouses in Europe. The number of species given was 45. We now know of 64, and of this number only one species as yet can be called a native of this country; several scales have been described from greenhouses in America, whose nativity are unknown at present. It may be that *Mytilaspis gloveri* Pack. is a native species, and we do know

that *Eriococcus azaleæ* Comst. is native beyond all doubt. No less than 26 species have been found in greenhouses in Massachusetts alone. The species already recorded by Signoret to inhabit greenhouses in Europe and which are now found in North America are designated in italics—*Signoret*.

MONOPHLEBINÆ.

1. *Icerya purchasi* Mask, 1878.

So far as I know, this coccid has been found but once, and in a greenhouse at Cambridge, Mass.; found there by Dr. Hagen. This is a very common species living out of doors in California.

PORPHYROPHORINÆ.

2. *Conchaspis angræci* Kkll.

C. rodrigueziæ Newst. is the same. Described as a *Pseud-inglisia*. Found in greenhouses in England (Newstead).

COCCINÆ.

3. *Eriococcus coccineus* Kkll.

Originally described from a greenhouse in Nebraska, on a rat-tail cactus (Cockerell).

4. *Eriococcus azaleæ* Comst., 1881.

Originally described from one of the U. S. department greenhouses at Washington, D. C. on *Azalea* (Comstock), and since then, found on *Azalea* in the College greenhouse at Michigan (G. C. Davis), and have been found living out of doors on *Azalea nudiflora* at Ithica, N. Y. (Comstock), and on white thorn (*Cratægus coccinea*) in deep woods at Methuen, Mass. (King).

5. *Dactylopius citri* Risso., 1813.

First described from greenhouses in Europe, is now found on *Croton* fern, *Arabian* and *Liberian coffee*-plants in the U. S. department greenhouses at Washington, D. C. (Comstock), on *Habrothomnus* and *Solanum jasinoides* in the College greenhouse at Colorado (Baker), on orange, coffee, tobacco, *Croton*, *Ipomea*, *Learii*, *Habrothomnus*, *Peonia* and *Solanum jasmoides* at Florida (Gossard), on greenhouse plants at Santa Fe, N. M. (Cockerell), on *Coleus*, *Cactus*, *Geranium* and ivy at Lawrence,

Mass. (King), and on *Callistemon lanceolatus* at Cambridge, Mass. (King).

6. ***Dactylopius longispinus* Targ.**

On ferns and several other plants in the U. S. department greenhouses at Washington, D. C. (Comstock), on ferns and other plants in New Mexico (Cockerell); also in greenhouses in Ohio, on *Cycas revoluta* in the Springfield Natural History Museum, Mass. (Dimmock), on palms, *Coleus* and fern at Lawrence, Mass. (King), in greenhouses in Europe. *Signoret*.

7. ***Dactylopius pseudonipæ* Ckll., 1897.**

Described from specimens found on leaves of palms in a California greenhouse. Previously found in a Michigan greenhouse and published as *D. nipæ* Mark. (Ckll. and Perg.); also on palms at Lawrence, Mass. (King).

8. ***Dactylopius nipæ* Mask.**

Found in the tropical greenhouse of the Harvard Botanical gardens, Cambridge, Mass., food plant unknown (King). This is a very common species living out of doors in Europe.

9. ***Dactylopius vitis* Newst.**

This is very destructive to greenhouse plants in England. Cited sometimes as *Coccus vitis*.

(To be continued.)

Letters from Thomas Say to John F. Melsheimer, 1816-1825.—VI, VII.

Washington, Dec^r 12th 1817.

My dear Sir.

Since I had the pleasure to see you I continued my walk to Baltimore & thence by the steamboat conveyance to Philad^a, without the occurrence of any incident worthy of note—After my arrival in Philad^a M^r M^r Clure,¹ (of whom I spoke to you, when I was at your home) invited me to accompany him on a journey to Florida, this invitation you may be sure I thankfully accepted, so that here we are thus far upon our journey to that promised land, not flowing with milk & honey it is true, but abounding in insects &c which are unknown, & if

¹ See proper spelling in next letter.

they remain unknown I am determined it shall not be my fault ; I received from M^r Oemler of Savannah a box of insects for you, & also one for myself which contained Diptera & Hemiptera—he requested me to open your box to observe their condition & to note such of them as I would wish him to send to me—In your box was a few of the larva of the Anthrenus, but little injury however appears to have been done ; in my box was at least twenty of these intruders & many insects were completely destroyed—I brought your box upon my lap with care to your friend in Baltimore together with M^r Oemler's letter to you, also the four first & seventh numbers of our Journal,² and the first number of my American Entomology all which I hope may reach you in safety & meet your approbation—Any letters &c you may send for me will be perfectly safe in Philadelphia untill my return

With the most sincere
respect & esteem

I remain your Obdt Serv^t

Thomas Say—

Philad^a June 10th 1818

Dear Sir—

After a considerable interval occasioned by absence from this country, I once more have the pleasure to address my friend—In my last letter I informed you that I was about setting off upon a journey into Florida in pursuit of objects of Natural History. This has been accomplished—I accompanied the president of our Academy M^r W^m Maclure (a gentleman well known in Europe & America for Science & beneficence) in his Carriage by easy journies as far as Charleston ; we then took the Steam boat to Savannah, & sent on the carriage by land. At Savannah we met our companions Messr^s Ord & Peale who had arrived a day or two before us from Philad^a by sea. Here the Carriage & Horses were sold & we Chartered a sloop of about thirty tons burden & after laying in our stores & necessarys we commenced our voyage toward the promised land—we stopped at each of the Sea Islands in order to examine their productions and the sea Coast for crustacea, Molusca &c—took in another

² Journal of the Academy of Natural Sciences of Philadelphia.

supply of provisions &c at St. Marys and then continued our voyage to the St. Juan—This noble river we ascended as far as Picolata, an old Spanish fortress, now in ruins, about 100 miles from its mouth, stopping occasionally at such places as presented an inviting aspect & making short excursions into the country on each side of the river—From Picolata we crossed the country on foot to St. Augustine in order to present our passports to the Governor of the Province and to obtain from him such information as might direct our further progress with the greatest probability of success—From him we learned that on account of the hostility of the Indians, it would be the extreme of imprudence to venture any further up the river, but that in the present state of things we would be more safe in exploring the more southern rivers & coast, such as Mosquito river &c —We therefore returned disappointed to our little vessel & retraced our voyage to the mouth of the river with the intention of going to Mosquito river & perhaps as far as to Cape Florida, but hearing that the Indians were troublesome in the south so that we would be in great jeopardy there, we determined once more to ascend the St. Juan as high as we had been before, & again seek upon the adjacent country for all those subjects of Nat. Hist. of which the acquisition was the sole object of our undertaking.

As we redescended the river we heard of parties of Indians who had been committing depredations, & one person informed us that a few days previous, his plantation was totally destroyed by them & his son killed, he narrowly escaped with the remainder of his family, & with the graze of a rifle ball on his forehead the Indians then took the road to Picolata; so that we departed from that place in good time, as it seems probable they went in quest of us—

After remaining a few days at the mouth of the river to make further collections we began our return voyage, we examined more in detail all the Georgia Sea Islands, revisited Fernandina in Amelia Isl^d; St. Marys, Savannah, Darien &c —At Charleston we abandoned our Sloop & embarked on board a packet Ship for this city, to which we have all returned in good health & without any casualty. Thus, in consequence of this most cruel & inhuman war that our government is un-

righteously & unconstitutionally waging against these poor wretches whom we call savages, our voyage of discovery was rendered abortive as we were not in Florida at the season we wished, the Spring, we therefore obtained but very few Insects & these few of but little consequence—My discoveries were principally in the Crustacea—

The other day I sent you the May number of our Journal—that of December you may expect to receive about the same time with this letter—Another number will be out in a few days which I will then send to you—please let me know if you have all the numbers complete & all the plates, if your series should not be perfect I will make it up—

I have put up for you a few Insects, two or three species of East India Fishes, & some Crustacea, but I much fear that they will not be new to you—

In Vol. I. New Series of the American Philosophical Transactions I have published "A Monograph of North American Insects of the Genus *Cincindela*" with a plate, this paper was given to that society on condition of their giving me a few separate copies of it; not a single separate copy however has been given me, this I am more especially sorry for, as I wished to have sent one to you, for your remarks upon it—

I remain respectfully

Your Ob! Serv!

Thomas Say

A Successful Failure.

BY ANNIE TRUMBULL SLOSSON.

(Continued from page 203.)

On this attractive shrub I took, also, a few specimens of a pretty little *Scymnus*, a variety of *S. bigemneus* Horn. This form was figured by Dr. Horn, having been taken by Hubbard and Schwarz in Florida some year ago.

But not all my discoveries were associated with the *Trema*. One day in January, when windy, wet weather kept me indoors, I saw upon my window an odd little beetle and bottled it. On examination it proved to be a Rhynchophorid, quite unlike anything I had ever seen, nor could I find any

description suiting it in LeConte and Horn's synopsis which I had with me. It puzzled Mr. Liebeck, to whom I sent it, and I consulted Mr. Schwarz, who was able to give me the desired information. He pronounced the beetle a member of a family new to the fauna of North America, the Allocorynidae. It belongs to the genus *Allocorynus* Sharp, of which there has been but one species described hitherto, from which this one is quite distinct. Mr. Schwarz has given it the MS. name of *A. slossonæ*, and will soon describe it. I took a second specimen, later, while sweeping low herbage along the shore of the Miami River.

I am fond of window-pane collecting. My windows at Miami are the only ones in the hotel without wire screens. Those I always have removed as soon as I arrive; they would interfere with my collecting. Many a choice specimen I have taken on the glass of those windows. One morning in March of this year I saw a small Hymenopterous insect upon one of the panes of an eastern window. While capturing it another appeared, and then another. Throughout the forenoon they came at intervals until I had several of both sexes, all the same species. They were evidently parasitica, and, as my windows were all closed, I felt sure they had emerged from something in the room. But what was it? There was not to my knowledge a chrysalis, pupa, or larva in that apartment, all such treasures being kept in an adjoining room. Suddenly I remembered an egg-case of a *Mantis* which a friend had brought in to ask about and left upon my table. I examined it and found that my tiny visitors had evidently come from this. I sent some of them with other insects to Mr. Ashmead, who identified them as *Anastatus mirabilis* Walsh, "parasitic on Katydid's eggs." In a small lot of parasitica, gathered by me in Miami, this last season, Mr. Ashmead found twelve new species, and others were marked by him "very rare," "West Indian," "described from Mexico." My Diptera, too, turned out well, several of my captures being new species and others exceedingly rare. Lepidoptera were very scarce. I took little of interest or especial value in that order. I was surprised by once finding at twilight hovering over blossoms a fine fresh

specimen of our northern Sphinx, *Ampelophaga versicolor*. I had no idea that its distribution was so extended. One afternoon in early March I found, under a board, a colony of ants. With them were many specimens of a dark Scarabæid beetle. As soon as I began trying to secure specimens of this the ants covered my hands, biting sharply, while others surrounded the beetles and hustled them, so to speak, into the burrows. In spite of this I managed to take several specimens of the beetles and of their hosts. But my hands smarted and tingled for some minutes after the struggle. The beetles proved to be *Euparia castanæ*, well known as one of our myrmecophilus species.

A few days after this I visited the place again, meaning to secure more specimens, but the station was destroyed. Some one had removed a portion of the boards formerly lying there and dumped a load of rubbish in their place, and my ants and their visitors were gone, or at least hidden from my searching eyes.

A few days before I left Miami, on a cold, raw day with high winds, while standing at a closed east window which looks out upon the bay, I saw a minute dark speck on the white sill outside. Opening the window I moistened my finger, took up the little dot and dropped it into a cyanide bottle. Occupied with other things, I forgot the capture until, some time after, I saw a similar speck upon same sill. I took that and afterwards another and another, until I had, I think, eight or nine. On examination I found them to be beetles, most dainty, graceful little creatures, evidently Latridiids, but quite unknown to me. They were identified by Mr. Liebeck as *Belonia unicastata* Belon. The genus was erected by Mr. Fall for this species and named for the distinguished French entomologist who found the types in Mexico. Hubbard and Schwarz took two specimens in Florida. There is on all my specimens a conspicuous chalky deposit which makes the head and thorax pure white. This is not referred to by Belon or Fall, and was evidently not present in the specimens before them. In speaking of the genus *Metophthalmus*, Mr. Fall makes mention of a similar white deposit on its species.

One day while creeping in and out among the mangroves on the bay shore I came upon an odd looking shrub with many dried brown roundish seed pods upon it. Breaking off one of these I cut it open and was surprised to see crawl out a fine reddish brown weevil. In an instant I recalled what Dr. Hamilton recorded years ago concerning *Cryptorhynchus lutosus*, its breeding abundantly in the pods of an abnormal leguminous shrub, *Ecastaphyllum brownei*. I was as much interested from a botanist's point of view as from an entomologist's. For years I had searched vainly for *Ecastaphyllum*. For years, too, I had seen shrubs like this one, but not in flower or fruit, and never suspected its identity, never even guessed that it belonged to the Leguminosæ. For it is indeed abnormal, its "leaves reduced to a single leaflet," the pod "orbicular, compressed, one-seeded," as Chapman's Manual says. For, of course, I looked my new shrub up as soon as I returned to the hotel, and I found that I was right in my diagnosis, botanical as well as entomological. I brought home some of the pods and nearly everyone contained the beetle, not at all a common one in collections.

Contributions to the Odonata of Maine.—IV.

By (the late) F. L. HARVEY, Orono, Me.

(Continued from page 198.)

69. *Ophiogomphus carolus* Needham.

Several males taken at Orono, June 18th, and Sunk Haze stream, June 28, 1898.

Our specimens do not have the inferior appendages so obliquely truncate as shown by Needham (pl. 5, fig. 26, Can. Ent., Sept., 1899, p. 237), the inner tips in our specimens being more obtuse.

Remarks : Since writing the above Prof. Needham has published an article on *Ophiogomphus*, which shows clearly that what has passed for *O. mainensis* is his *carolus*, and that the true *O. mainensis* is known only by the type ♀, which is a very different insect from the ♀ of *O. carolus*, and, as we suggest under *O. anomalus*, may be that species.

61. *Ophiogomphus anomalus* Harvey.

A second male was taken along the border of woods June 8, 1898, and on June 7 and 8, 1899, 75 pairs were captured permitting a more careful study of the male and a description of the previously unknown female.

The males vary in length from 39 mm. to 44 mm. The width of the abdomen at the base of the 8th segment is fully 5 mm. in life instead of 2.5 as given in the original description. The spots on the dorsum of 9 and 10 are somewhat variable; the most agree with the original description, but the spots on both 9 and 10 are sometimes obovate and the one on 9 sometimes oblong. The superior appendages are armed with numerous stout hairs. The hind wing is prominent at the anal angle as in the male of *O. carolus*.

♀ (previously unknown).—Slightly shorter than the male, 39–41 mm., but the hind wing slightly longer, 25–26 mm. Color, head and thoracic markings and legs very nearly as in the male. Occiput armed with two prominent spines which are close together, with the tips in contact. The abdomen widening from the 7th to the 9th segments, 10th narrower. Mid-dorsal and lateral stripes as in the male, differing particularly in the form of the spots on 9 and 10, which are more frequently semicircular, curved side cephalad. The spot on 9 is sometimes square as in the male and sometimes circular. The spot on 10 is sometimes nearly obsolete. The marking on the side of 9 is not C-shaped as in the male.

In both sexes there is a pit in the side of segments 8 and 9; the C-shaped spot on the 9th segment of the male includes this pit; the head and thorax are very hairy; the wings yellowish toward the base and the whole wings give coppery reflections.

[A comparison of five females, from Orono, June 7 and 9, 1899, sent me by Prof. Harvey, with the figures of vulvar laminæ by Prof. Needham (Can. Ent. xxxi, p. 237) shows that *anomalus* is most like that of *carolinus* Needham, fig. 35; the differences are that the cleft and the interval separating the two lobes are respectively somewhat deeper and wider than in fig. 35.]

This species will have to be added to those spoken of by Prof. Needham as abundant, my son, Bartle Harvey, and myself having taken with nets, in two days, about seventy-five pairs. On the afternoon of June 7th I collected upon a hill in a pasture, covered in part with clumps of small birches, evergreens and low bushes. In one part the ground is springy, overgrown with low bushes and grass. There is no running

water and in the summer the ground is often entirely dry. The wind was blowing from the north and the specimens were on the south borders of the clumps of trees and bushes in the sun. We took in two hours twenty-five pairs, besides numerous specimens of *Gomphus abbreviatus* and *brevis*. The specimens were in many cases *teneral* and hardly able to get out of the way. They must have emerged recently, yet there were no ponds or streams nearer than a quarter of a mile. We could not escape the conclusion that they must have emerged near by. We thought that they might possibly have emerged from the springy swamp, and made a search for exuviae but found none.

The next day we found them abundant at the same locality, and on the south side of another wood, over a mile away, near low swampy ground, where we took the type several years before. On this day, June 8th, we saw them by hundreds high up on the branches of hemlocks basking in the sun, some of them in copula. When a stick was thrown into the trees they rose in clouds. June 9th we went to the same locality and not a single specimen could be found. We searched the small ponds and small streams and the Penobscot River for several days in hopes of finding where they oviposit, but did not take or see a single specimen. We have never seen *Gomphus abbreviatus* along streams or ponds, but *G. brevis* has been taken sparingly over swift water at Chemo stream. We are troubled to know whence these species come and whither they go. We would suggest that those who wish to take rare *Gomphi* and *Ophiogomphi*, search at the right season, away from the streams and ponds, on high ground, on the south side of woods in open pastures. We believe it is quite common for species to go away from the breeding places in the teneral stage. We found on this same hill teneral *Ophiogomphus rupinsulensis* and the rare *Neurocordulia yamaskanensis* in the teneral stage for two seasons on the same date, also the teneral form of *Macromia illinoisensis* and *Neurocordulia uhleri*.

[The question of the specific identity of *anomalus* Harvey and *mainensis* Packard, having been raised, Prof. Harvey sent specimens of the former to Cambridge to be compared with the

female type of *mainensis* in the Museum of Comparative Zoology. He received this reply under date of—

“Nov. 24, 1899. Dear Mr. Harvey:—As Ophiogomphids go I should consider *anomalus* distinct from *mainensis*. The occipital spines differ slightly, but the series is insufficient to decide the value of these differences. The abdominal markings and the appendages are, however, quite distinct. *Mainensis* is a more robust species than *anomalus*, and excepting the lateral spot is without markings on the last three abdominal segments. The appendages are fulvous in *mainensis*. Yours truly,

“SAMUEL HENSHAW.”

Prof. Needham has also pointed out the great resemblance between *carolus* Needh. and *mainensis*. Without attempting to make any positive statements with regard to these three species, they appear to be distinguishable, as far as present information goes, by the following features:

Anomalus. Total length ♂ 39-44, ♀ 39-41. Inferior appendage of ♂ greatly upcurved in apical half. ♀ occiput with the spines contiguous, 8-10 abd. segs. with dorsal yellow spots.

Mainensis. Total length ♀ 46 mm. (♂ unknown). ♀ occiput with the spines contiguous, 8-10 with no dorsal yellow spots.

Carolus. Total length 40-42 mm. Inferior appendage ♂ not upcurved in apical half. ♀ occiput with spines not contiguous, 8-10 with dorsal yellow spots.

The shapes of the vulvar laminæ also differ, according to Prof. Needham's figures (Can. Ent. xxxi, p. 237).

It remains to be seen whether these differences are constant. —P. P. CALVERT.]

70. **Ophiogomphus aspersus** Morse.

We were fortunate in taking seven specimens of this rare species (six males and one female) on Russell stream near N. E. Carry, Me., August 25-27, 1899. So far as we know, the types are the only specimens that have been taken. The capture is important also, as establishing a definite locality, as the exact locality of the types was not known. (See Psyche, March, 1895, p. 210.) The species was flying over swift water

with *G. scudderi* and lighting on sand bars and low bushes. It was scarce. We did not see it ovipositing.

The appendages and hamules of our specimens agree with Needham's figures of this species, but the specimens differ from Morse's description as follows: The thorax is bright grass green in both sexes, but the female faded in drying more than the males, which held their color well.

The abdomen of the males varied from 31 to 33 mm. In all of our specimens the antehumeral stripe is joined to the humeral stripe above, but separated below by a green stripe of equal width. The spot on the dorsum of 10th abdominal segment not lanceolate but oblong.

(To be continued.)

CORRECTION TO ENT. NEWS, 1901, p. 207, line 17: Erase "*platyura* Meigen =", and insert a (after "zett."

ORGANIZATION OF CALIFORNIA ENTOMOLOGICAL CLUB.—On August 7, 1901, Mr. Charles Fuchs issued a call to the entomologists of California for the organization of an Entomological Club.

Pursuant to call a meeting convened in the Academy of Natural Sciences of San Francisco, at 2 o'clock on August 15th.

Prof. H. Fall, acting as temporary President, opened the meeting. The following officers were elected for the current year:

President, Charles Fuchs; Vice-President, Prof. Vernon L. Kellogg; Secretary and Treasurer, Dr. F. E. Blaisdell.

President Fuchs then took the chair and proceeded to the further organization of the Society. Interesting remarks were made by Prof. Wm. H. Ashmead.

It was decided that the Club hold quarterly meetings, and that the summer meeting be termed the annual meeting, and be subject to the change of time and place. That the November meeting be held at the residence of Mr. Charles Fuchs.

It was also decided that the May meeting be a field day.

Social discourse then followed.

The following is a list of the charter members:

Charles Fuchs, Dr. E. C. Van Dyke, Prof. H. C. Fall, E. L. Ricksecker, Dr. H. H. Behr, W. G. W. Harford, Beverly Letcher, F. W. Nunenmacher, C. W. Herr, Prof. William H. Ashmead, Edw. Ehrhorn, James W. Cottle, Dr. F. E. Blaisdell, J. G. Grundel, C. A. Whiting, Newton B. Pierce, Dr. A. Fenyes, George Harvey, F. E. Clark, Prof. J. J. Rivers, L. O. Howard, Grattum Naturalist Club. Adjournment.

F. E. BLAISDELL, *Secretary*.

1906 Sutter St., San Francisco.

Butterflies from Yellowstone National Park.

By H. K. BURRISON.

The following were taken between June 16th and August 5th, in Yellowstone National Park and vicinity :

Danaïs archippus	Thecla sœpium*
Euptoieta claudia	calanus*
Argynnis leto	dumetorum*
cipris*	dumetorum(?)*
oweni*	Chrysophanus
cornelia*	editha
electa*	mariposa
hippolyta*	heloïdes
bremnerii	var. florus
zerene*	rubidus
rhodope	Lycæna heteronea
chitone*	fulla
coronis	sœpiolus
snyderi*	icaroides
meadii	pheres
edwardsii	sagittigera
laura	podarce
artonis	rustica
eurynome	shasta*
montivaga	melissa
égleis	scudderi
myrina	acmon
helena	Pieris occidentalis
kreimhild	beckeri*
Melitæa chalcon	Anthocharis ausonides*
whitneyi	Colias meadii*
Phyciodes tharos	eurytheme
pratensis	eriphyle
mylitta*	christina
Grapta zephyrus*	skinnerii*
satyrus*	Parnassius smintheus
Vanessa antiopa*	hermodur
milberti*	Papilio brucei*
Pyrameis cardui	Thymelicus garita
Limenitis weidemeyeri*	Caterocephalus mandan*
Cænonympha pamphiloides	Pamphila colorado
Erebia epipsodea*	uncas
haydeni	peckius
sofia*	siris
Hipparchia-ridingsii	cernes
Satyrus boopis*	Pyrgus tessellata
nephele*	ericetorum
charon	Eudamus pylades*
Chionobas chryxus*	

Species starred were taken in very small numbers. The Papilios and Theclas were very scarce.

The collecting was done between "sight-seeing" and camp duties. As we travelled by team some 400 miles, there was but little time to devote to collecting.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., OCTOBER, 1901.

COLLECTING TRIPS.

The enthusiastic Entomologist is always thinking of new fields to conquer and is constantly longing to explore new places and capture specimens and species not taken in his own locality. He has in his mind's eye new and rare species in numbers and perhaps confidently hopes to get them. If he has but a limited amount of time at his disposal for such a journey there are a number of things that may spoil his fond dream, the principal one of these being the weather. It sometimes happens that every collecting day in the field may be a rainy one and Old Sol simply will not shine for his benefit. Or the contrary may happen, and a prolonged drouth makes him equally unhappy. Then, again, from a combination of causes it may be a bad season for insects and his catch may be numerically small and poor as to the value of the species taken. Indeed fortunate is the individual who has time to put in a whole season in a choice locality, as time is almost sure to return a reward more or less rich. There are, however, other rewards, such as the pleasure of the outing and renewed health and vigor which usually come to all who indulge in the pastimes of forest, field and stream. The hope of ideal conditions keep him at it and sooner or later the large returns comes.

Entomological Literature.

COMPILED BY P. P. CALVERT. *

Under the above head it is intended to mention papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology will not be noted. Contributions to the anatomy, physiology and embryology of insects, however, relating to American or exotic species, will be recorded. The numbers in **HEAVY-FACED TYPE** refer to the journals, as numbered in the following list, in which the papers are published; * denotes that the paper in question contains descriptions of new North American forms. Titles of all articles in foreign languages are translated into English; usually such articles are written in the same language as the title of the journal containing them, but when such articles are in other languages than English, French, German or Italian, this fact is indicated in brackets.

3. The American Naturalist, Boston, '01.—**4.** The Canadian Entomologist, London, Ont., '01.—**5.** Psyche, Cambridge, Mass., '01.—**7.** Yearbook, U. S. Dep't. of Agriculture, 1900, Washington, Rec'd. Aug., '01.—**11.** Annals and Magazine of Natural History, London, '01.—**22.** Zoologischer Anzeiger, Leipsic, '01.—**32.** Bulletins, Museum d'Histoire Naturelle, Paris; rec'd. Aug. and Sept., '01.—**35.** Annales, Société Entomologique de Belgique, xlv, Brussels, '01; No. 6, July 3, No. 8, Aug., 30.—**36.** Transactions, Entomological Society of London, 1901, pt. ii, July 10.—**40.** Societas Entomologica, Zurich-Hottingen, Aug. 15, '01.—**44.** Verhandlungen, Zoologisch-botanischen Gesellschaft in Wien, li, 5, July 17, '01.—**45.** Deutsche Entomologische Zeitschrift, 1901, 1, Berlin, July.—**46.** Tijdschrift voor Entomologie, xlv, 1, The Hague, July 29, '01.—**49.** Termeszetráji Füzetek, xxiv, 1, Budapest, July 10, '01.—**55.** Le Naturaliste, Paris, Aug. 1, '01.—**56.** Mittheilungen, schweizerischen entomologischen Gesellschaft, x, 8, Schaffhausen, June, '01.—**58.** Revista Chilena de Historia Natural, Valparaiso, May-June, '01.—**79.** La Nature, Paris, '01.—**89a.** Zoologische Jahrbücher, Abtheilung für Anatomie, xiv, 4, Jena, July 22, '01; **89s.** id. Abtheil. f. Systematik, xiv, 6, Aug. 6, '01.—**102.** Proceedings, Entomological Society of Washington, iv, 4, July 16, '01.—**108.** Agricultural Journal, Dep't. of Agric. Cape of Good Hope, Cape Town, June 6, '01.—**140.** Proceedings, Washington [D. C.], Academy of Sciences, iii, '01.

THE GENERAL SUBJECT.—**Bethune, C. J. S.** Miss Eleanor A. Ormerod, portrait, **4**, Sept.—**Hubbard, H. G.** Letters from the Southwest: Insect fauna in the burrows of desert rodents, The Colorado desert, Salton Lake in the Colorado desert and its insect fauna; Insect fauna of *Dasyllirion Wheeleri*; Insect life in Florida caves, **102**.—**Lovell, J. H.** The colors of northern apetalous flowers, **3**, March.—**Mory, E.** On some new Swiss bastards of the Sphingid genus *Deilephila* and the discovery of derived hybrids in nature, **56**.—**Pocock, R.**

* The Compiler takes pleasure in acknowledging the kindness of Mr. Wm. J. Fox, who took charge of the recording of titles during the former's absence from Philadelphia for a part of the summer.

I., Kirby, W. F., and Waterhouse, C. O. Report on a collection made by Messrs. F. V. McConnell and J. J. Quelch, at Mount Roraima in British Guiana, Transactions Linnean Society of London (Zool.), viii, pt. 2, Sept., 1900, rec'd. Aug. 10, '01.—**Schwarz, E. A.** On the insect fauna of the mistletoe, **102.**—**Schwarz, E. A. et al.** H. G. Hubbard [obituary], **102.**—**Wagner, W. A.** On color and mimicry among animals, Travaux de la Société Imperiale des Naturalistes de St. Petersburg, xxxi, 2, '01.

ECONOMIC ENTOMOLOGY.—**Beattie, W. R.** The use of hydrocyanic gas for the extermination of household insects, Science, New York, Aug. 23, '01.—**Capitan.** Solar spots and invasions of grasshoppers, **79**, June 29.—**Clement, A. L.** The new hall of applied entomology [Paris Museum], figs., **79**, June 29.—**Fermi, C. and Proccacini, R.** Prophylactic researches against malaria on the north coast of Sardinia, Centralblatt für Bakteriologie, Jena, June 13, '01.—**Froggatt, W. W.** Locust fungus in Australia, **108.**—**Giard, A.** Periodicity of the invasions of locusts (*Caloptenus italicus* L.) and preventive measures against these Orthoptera, Comptes Rendus, Société de Biologie, Paris, June 28, '01.—**Gossard, H. A.** The cottony cushion scale, figs., Bulletin 56, Florida Agric. Exp. Station, Deland, Fla., May, '01.—**Howard, L. O.** Smyrna fig culture in the United States, figs., 8 pls., **7.**—**Launoy, L.** Renal alterations following acute intoxication by scorpion venom, **32**, 1901, No. 1.—**L[ounsbury], C. P.** Destroying locusts, soap with cyanide and dips with gas liquor, **108.**—**Marlatt, C. L.** The scale insects and mite enemies of citrus trees, figs., 6 pls., **7.**—**Roberts, I. P., Slingerland, M. V., and Stone, J. L.** The Hessian fly: its ravages in New York in 1901. Bulletin 194, Cornell University Agr. Exp. Station, Ithaca, Aug., '01.—**Schwarz, E. A.** A season's experience with figs and fig-insects in California, **102.**—**Stevenson, C.** An antidote to insect-bites [naphthaline], **4**, Sept.—**Vayssière, A.** Study of the insects which attack sticks and juice of licorice, Annales, Faculté des Sciences de Marseilles, xi, 3, no date, rec'd. Aug. 14, '01.

ARACHNIDA.—**Banks, N.** Synopses of North American Invertebrates, xvi, The Phalangida, **3**, Aug.—**Barrett, O. W.** The effects of scorpion venom, **4**, Aug.—**Coupin, H.** An omnivorous Acarine, figs., **79**, Aug. 24.—**Kew, H. W.** Lincolnshire Pseudoscorpions, with an account of the association of such animals with other Arthropods, figs., The Naturalist, London, July, '01.—**Launoy, L.** See Economic Entomology.—**Peckham, G. W. and E. G. Pellenes,** and some other genera of the family Attidæ. Bulletin Wisconsin Natural History Society, i, 4, Milwaukee, '01.—**Rainbow, W. J.** Notes on the architecture, nesting-habits and life-histories of Australian Araneidæ, based on specimens in the Australian Museum, figs. Records, Australian Museum, iv, 3, Sydney, July 29, '01.—**Wolcott, R. H.** Description of a new genus of N. Amer. water mites, with observations on the classification of the

group, Transactions, American Microscopical Society, xxii, Lincoln, Nebraska, May, '01, rec'd. July 18.

MYRIOPODA.—**Behal** and **Phisalix**. Quinone, the active principle of the poison of *Julus terrestris*, **32**, 1900, No. 7.—**Blackman, M. W.** Spermatogenesis of the Myriapods: Notes on the spermatocytes and spermatids of *Scolopendra*, i, 3 pls. Bulletin, University of Kansas, ii, 6, Lawrence, Kans., Aug. 10, '01.—**Brolemann, H. W.** Myriopoda of America, Memoires, Société Zoologique de France, xiii, Paris, 1900. Rec'd. July, '01.—**Cook, O. F.** *Duoporus*, a new Diplopod from Mexico,* **102**.—**Heymons, R.** The history of the development of the Scolopendridæ, i, Zoologia, xiii, 2-3, Stuttgart, '01.—**Phisalix, C.** A volatile poison: cutaneous secretion of *Julus terrestris*, **32**, 1900, No. 7.

COLLEMBOLA.—**Absolon, K.** Further news on European cave Collembola and on the genus *Aphorura*, A. D. MacG., **22**, July 8.—**Carl, J.** Second contribution to the knowledge of the Collembola fauna of Switzerland, Revue Suisse de Zoologie, ix, 2, Geneva, Aug. 12, '01.—**Willem, V.** The influence of light on the pigmentation of *Isotoma tenebricola*, 1 pl., **35**, 6.

ORTHOPTERA.—**Morse, A. P.** A new *Xiphidium* from Florida, **4**, Aug.—**Turley, L. W.** *Cyphoderris monstrosa*, **4**, Sept.

NEUROPTERA.—**Currie, R. P.** A dwarf ant-lion fly,* **102**; Papers from the Harriman Alaska Expedition, xxii: Entomological results (14), Odonata, **140**, pp. 217-223, July 13.—**Enderlein, G.** New German and exotic Psocidae with remarks on classification, 1 pl., **89s**.—**Martynow, A.** On some peculiar glands in the larvæ of Trichoptera, **22**, Aug. 5.—**Weith, R.**, and **Needham, J. G.** The life history of *Nannothemis bella* Uhler, figs., **4**, Sept.

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DEPARTMENT OF ECONOMIC ENTOMOLOGY

Edited by Prof. JOHN B. SMITH, Sc.D., New Brunswick, N. J.

Papers for this department are solicited. They should be sent to the editor, Prof. John B. Smith, Sc.D., New Brunswick, N. J.

SAN JOSE SCALE.

One of the most interesting pamphlets on this apparently over-worked insect has come recently into my hands by the kindness of Dr. L. Reh, its author. It is entitled "Zucht-Ergebnisse mit *Aspidiotus perniciosus* Comst.," and is an extract from the Jahrbuch der Hamburgischen Wissenschaftlichen Anstalten, XVII, 1899. It describes a series of observations made on scales found on American apples, and carries the young from birth to the beginning of the adult stage. The observations concerning the length of the various stages do not apply to field conditions existing here; but some of the other points seem to have escaped our own students or to have been considered immaterial.

First of all the suggestion is made that it is somewhat probable that the species is parthenogenetic. The contrary has been rather assumed than proved; but on the other hand there is no proof either that parthenogenesis really does exist. The matter is of great practical importance, because on budded nursery stock a few single scales widely scattered in a large block may occur. I have known a set of cuttings bought to obtain a new variety, to have just one scale so situated as to make it likely that it would be budded in. Assuming this to be a female requiring coition with a male to produce young, and there is no danger of infesting the nursery; assuming the contrary, and this one scale might prove the centre from which in a year or two a large area may become infested.

Larvæ were obtained from two females, both of which threw off the scale before reproduction commenced, partly covering themselves by a dense white, woolly or waxy excretion from the sides of the posterior segments. No reason is suggested for this particular proceeding; but it is noted that the same fact was observed on *Aspidiotus pyri*, *Diaspis pentagona* and *D. ostreaformis*. It would be an excellent thing were this habit usual, as it would enable us to use comparatively weak sprays effectively during the growing season. The observations made on the active larva agree with those published by Howard and Marlatt, but it is added that the larvæ have for a few days at least the power to change their location, even after the white waxy covering has become complete over the insect. He noted two instances where larvæ had set on an apple and afterwards, two or three days later, changed their position. The first of white scale is made up entirely of the waxy filaments extruded by the larva and is very easily removed from it.

If this is done the larva renews it promptly. So long as this white scale remains the larva does not moult, and larvæ only have been found under it. The black scale is formed by waxy excretions from the insects, appearing in narrow wings at the edges of the white scale, which is gradually lifted and forms a central covering which, in a short time, either shrivels and falls off, leaving a discernible torn edge, or it actually changes colors. In other words, the white scale and the black scale are produced in the same way and consist entirely of wax or waxy excretions. No exuvium is ever found under such a scale and none ever forms part of it. On close examination under the microscope it is shown that the insect is really in the larval stage as yet, though the legs and other appendages have lost function. The chitinous walls of these appendages are yet present; but the contents have been completely absorbed.

Moulting is coincident with the beginning of the final scale, which is a totally new structure of which the exuviae or cast skins form a part.

I have myself noted the fact that the insects that live through the winter and start reproduction in spring are those under the black scales or, as I described them, half-grown scales. I do not believe, and so stated, that any specimen that becomes sexually mature and begins to reproduce in fall ever resumes breeding in spring. The fact that reproduction begins so generally at one time—in New Jersey, June 10—argues that the insects that survive are all in about the same stage, which Dr. Reh's observations indicate is as the larva. This affords a reasonable explanation, not only for the late date that reproduction begins, but for the fact that within less than a week almost every surviving individual seems to be bringing forth young.

The final scale begins as a paler ring at the margin of the black scale, and the latter, for a time, forms the nipple or covering. This in time meets the fate of the white scale, is cast or rubbed off and leaves the yellowish centre.

A curious fact seems to be that whereas in American examples the complete black covering to the adult scales is exceptional, in the Japanese examples it seems to be the rule. Dr. Reh thinks that Cockerell's species *andromelas* and *albopunctatus* are based upon examples of *pernicius* varying in the presence or absence of this second black scale. Dr. Reh also inclines to agree with European authors concerning the method of moulting, and considers Howard and Marlatt in error in describing the separation of the old larval skin into a dorsal and ventral half. He believes, on the contrary, that the skin splits transversely before the mouth parts and that the insects wriggles out through the slit so formed.

The entire paper is suggestive and well repays careful reading though, as already stated, the breeding notes should not be too literally applied to field conditions in America.

Another interesting paper by Dr. Reh is on the resistance of certain species of *Diaspinæ* to external influences, from the "Biologischen Central Blatt," December, 1900. In this he gives the results of a long series of experiments made with all sorts of liquids and gases, mainly on certain species of *Diaspis* and *Aspidiotus* including *A. perniciosus*. The results are sometimes a little unexpected and not easily explained, as when complete submergence in 90 per cent alcohol for several hours failed to kill, and when hydrocyanic acid gas left living examples after a twenty-four hours' exposure. But even painting over with chloroform and kerosene proved more or less ineffective and it would seem, theoretically, that such substances and such processes would not be of much practical use. Nevertheless we know that the gas and the kerosene really are very effective in the nursery and orchard.

The only positively fatal applications were coverings with rape oil and vaseline. These, though rather slow, were absolutely certain and are classed as methods of excluding air. The paper concludes, freely translated, as follows:

"As the most effective method, aside from the mechanical destruction of the insects, my results indicate the exclusion of air, which is most easily obtained by covering with oil or fat, and surely kills all the lice."

This is important, because it confirms experimentally what I have advised practically in the orchard. Crude petroleum leaves a thin vaseline coating which, eventually, kills everything in its way, even the tree, if it is present in excessive amount. It kills by excluding air, of course, but perhaps not quite in the way indicated by Dr. Reh. The material forms no coating over the scale—it penetrates through it and, sooner or later, comes into contact with the insect itself, closing its breathing operations in the most effective manner. But this is different from the mere exclusion of air, as where, for instance, by a resin mixture applied to the outer surface, the scale is practically sealed to the tree, none of the substance coming into contact with the insect itself. I would quite expect a long life for an insect so covered, and would not be surprised if, in the mere process of growth, the seal would not be in time broken.—JOHN B. SMITH.

Doings of Societies.

A regular stated meeting of the Feldman Collecting Social was held this evening, September 18th, at the residence of Mr. H. W. Wenzel, 1523 S. 13th Street, 11 members present. The President, Mr. Charles W. Johnson, in the chair. The Minutes of the last meeting were read and approved.

Mr. H. Wenzel exhibited a series of seven boxes containing his collection of *Lachnosterna* which he had worked up during

the summer. The local species which he had before were without data or correct localities, and he spent the summer collecting in southern New Jersey and around Philadelphia for this genus. He had about twenty species in all.

Prof. Smith said this fine series showed what systematic collecting could do. He exhibited specimens of *Epicauta callosa*, which is a species new to New Jersey, eight specimens were taken before noon August 19th, on the cranberry bogs near New Lisbon. He also exhibited specimens of the pitcher plant mosquitoes, which had been found to be a new species, and was described by Coquillett as *Aedes smithii*, and stated that he now had its complete life history. This insect has also been found in Florida in the species of orchids which grow up on the trees. The female *Aedes* lay their eggs in the newest leaves of the pitcher plants and do not always wait for water to collect in them. Of the specimens of larvæ which he had taken during the winter the last one changed to the pupa state about September 9th, thus being in a larval state since last October. He thought that there were about three broods and that the different specimens vary in their time of appearing, which seems to give one continuous season.

Mr. H. Wenzel showed some larvæ which had been taken in some dirt around the roots of trees in the "Philadelphia Neck." He thought at first that they were *Lachnosterna*, and placed them in a jar filled with dirt, and in about six weeks the larvæ changed to the imago, and instead of being *Lachnosterna* they turned out to be *Chalepus trachypygus*.

Prof. Smith spoke about the trouble which had been caused around New Brunswick by *Ligyрус relictus* attacking plants. This is the first time he has known it to be of economic importance.

Dr. Skinner stated that while collecting at Castle Rock, Pa., he took a specimen, *Griburius equestris*, on the 23d of June, and *Necydalis mellitus* on the 30th of June; both are new to this locality. A specimen of *Neonympha areolatus* was also taken at Jones' Mills, N. J., on the 21st of June, by Mr. Witmer Stone, and is a new locality for New Jersey.

Mr. Daecke showed a specimen of *Ptynx appendiculatus* taken

at Dacosta, N. J., on July 16th, and not before recorded from New Jersey. He also exhibited a number of *Mutilla* taken at Dacosta, N. J., September 2, 1901, on a tulip tree infested with *Lecanium tulipiferae*.

Dr. Skinner mentioned that at Dacosta, N. J., on July 4th, *Cicada hieroglyphica* was seen by thousands. He stated he had spent his vacation out West, and gave the following points concerning his trip :

"The greater part of the time was spent in Sapello Canon, which runs into the main range of the Rocky Mountains from the east, about thirty miles northwest of Las Vegas, New Mexico. Collecting was done at an elevation of from 7200 to about 11,000 feet ; fire was necessary night and morning and rains were constant every day but one. A much larger amount of material would have been obtained if it had not been for the wet weather. It is too soon to say anything about the result of the trip as the material has not been studied. *Argynnis nitocris nigrocærulea* Cockerell was taken and other interesting butterflies. *Platynus nivalis* Horn and an undetermined *Cychrus* are of interest in the Coleoptera. I hope later to give a detailed account of the species taken."

The Secretary read a note from our fellow member, Mr. Frank Haimbach, tendering his resignation as a member of the Social. The same was accepted.

The Secretary invited the members of the Social to hold the October meeting at his residence, 2245 N. Lambert Street, which was accepted.

After the reading of the rough minutes the meeting adjourned to the annex at 11 o'clock. W. R. REINICK, *Secretary*.

The eighteenth regular meeting of the Harris Club was held at 35 Court Street, Boston, on the evening of June 14, 1901.

Messrs. Hall, Newcomb and Osgood showed some ingenious forms of collecting boxes. Several members discussed devices for trapping insects. Mr. Newcomb told of the capture of *Hemaris thysbe* at electric light. Mr. Morse showed an inter-

esting collection of New England Orthoptera. Mr. Field exhibited a series of specimens of *Lycaena xerxes*.

The exchange of specimens was made a prominent feature of the meeting.

W. L. W. FIELD, *Secretary*.

A regular stated meeting of the Newark Entomological Society was held on Sunday, Sept. 8, at Turn Hall, 11 members being present. President Buchholz in the Chair. Mr. Seib exhibited larvæ of *Phobetron pithecium*. Mr. Luccareni exhibited a set of *Sphæridium scarabæoides* taken near Split Rock Pond, Morris County and heretofore not listed from New Jersey.

All members present at the field meeting at Paterson reported excellent captures, amongst which were *Cremastochilus canaliculatus*, 20 taken, and *Byrrhus americanus*.

GEORGE LUCCARENI, *Secretary*.

OBITUARY.

Louis Schneider, one of the best known of local entomologists and botanists, died recently at his residence, 1615 Girard avenue. His death was due to angina pectoris, and was wholly unexpected, as he had gone to his place of business in the morning apparently well. He came home feeling ill, and died in a few hours.

Mr. Schneider was born Feb. 16, 1836, at Hungen, Hesse-Darmstadt, where his father was Burgomaster. The young man came to this country in 1853, and for more than forty years was in business. He was a manufacturer of canes, and of umbrella, whip and cane handles, billiard balls, etc., at 234 Ionic Street, and was known in his line all over the country. He was a member of the Academy of Natural Sciences, of the Philadelphia Botanical Club and an organization member of the American Entomological Society. At all seasons of the year Mr. Schneider made pilgrimages into the country, and he was one of the best informed men in the city as to localities in which entomological or botanical specimens of particular kinds could be found.



CHIONOBAS KATAHDIN

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AND

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Strength of *Passalus cornutus* Fab.

By W. E. HINDS, B.S.

Entomological Laboratory of the Massachusetts Agricultural College, Amherst, Mass.

It is generally believed that insects possess tremendous strength in proportion to their size. This belief rests largely upon casual observations of applications of strength so striking as to command attention. The true value of such observations can, however, seldom be determined, because the observer has taken no pains to accurately measure the strength exerted, and it is difficult to estimate it closely. We are indebted to European entomologists for the few facts which have been recorded upon this subject, as no record has been found of any experiments in this line by American writers—a somewhat remarkable fact since the field is so full of novelty and interest.

The experiments here recorded were first suggested by the very prominent horn upon the head of *Passalus cornutus* Fab. (Fig. 1), and though the work was begun as an interesting novelty, the results obtained soon showed the possibility of an extended series of experiments, and this article is written with

the hope that the facts here recorded may not only add something to our knowledge of insect strength, but also suggest work in similar lines with other insects.

Although the horn first suggested the idea of harnessing this beetle, it was soon found that this appendage did not lend itself to the purpose of these experiments as readily as had been anticipated, so no use was made of it in the trials recorded. These trials may be divided into seven principal groups as follows :

1. Power exerted by the beetles while crawling along a horizontal cork surface, measured by the extension of a spring to which the beetle was attached (Fig. 2).

2. The same experiment repeated, except that a chip of wood taken from one of the burrows was used in place of the cork.

3. The beetle was allowed to crawl into an artificial burrow formed by fastening a sheet of cork above a piece of wood taken from a burrow at the average vertical height of the burrows (Fig. 3). This gave the most natural conditions for the pull.

4. Power exerted when climbing a vertical surface of rough wood. This was measured in two ways which gave no apparent difference in results ; *a*. By the extension of a spring, the thread attached to the beetle turning 90° around a pulley (Fig. 4) ; *b*. By loading the weights upon a platform suspended directly from the beetle.

5. Power exerted in lifting a weight by straightening the legs so as to clear the ventral surface of the body from the surface on which it rested.

6. Power exerted in lifting a weight by the head and pro-thoracic muscles, the hinder part of the body being firmly fastened in such a position that the insect could touch nothing with its legs (Fig. 5).

7. A repetition of the sixth experiment with the addition of an opportunity for the insect to brace its forelegs so as to assist in the lift.

In all cases the strength exerted in moving or lifting a load was measured in terms of weight, determined by different devices as explained under each experiment. Two methods of determining these weights were used : first, by measuring the extension of a spring and then finding the weight in grams which would produce the same extension ; second, by adding weights to a small, light platform suspended directly from the beetle. In this article the weight in grams equivalent to the strength actually exerted is given first, followed by figures in parenthesis showing the ratio of the weight actually moved or lifted to the weight of the insect.

Two series of six beetles each were put through each of these seven experiments. Each beetle was weighed and measured, the length being taken from the tip of mandibles to the tip of abdomen, and the breadth at the middle of the wing-covers. The first six beetles were allowed a rest of twenty-four or more hours between each experiment, and their weights were taken every fourth day. The second six were more carefully weighed, put through the experiments in quick succession and immediately weighed again. The loss of weight was thus found, to see if any constant relation existed between the weight lost and the work done. Two beetles were kept as checks upon these loss of weight experiments.

In the first three experiments the device shown in Fig. 2 was used for measuring the strength of the beetles. A watch spring was selected of such size that it could be used to measure any tension from one-tenth of a gram to over two hundred grams, and straightened somewhat so as to form a single loop. One end of the spring was securely clasped to a board by means of a screw through a small washer; the other end was bent into a hook so as to hold the thread by which the beetle pulled. A knot tied in the thread a short distance from the hook formed a mark which could be easily followed with the eye, and by placing a millimeter scale in line with the spring and beyond the knot in the thread an easy means was obtained of accurately measuring the elongation of the spring when subjected to a pull. The thread from the spring was passed forward below the body of the beetle between the middle and hind legs and tied around the pro-mesothoracic constriction. The beetles appeared very willing to exhibit their strength, and as soon as they found themselves attached they would endeavor to escape, showing a decided tendency to travel straight toward the window.

During the pull more strain seemed to be exerted upon the apical tibial spurs, which are well developed upon all the legs, than upon the tarsal claws, of which only the fore pair appeared to be of any considerable assistance. It was found that the rough surface of the wood (as the beetles had left it upon the excavation of their burrows) afforded so much more favorable

footing than the cork that they could pull approximately one-sixth more upon the former than upon the latter. The average pull in experiment 1 was 17.725 grams (17.07:1); while that in experiment 2 averaged 20.417 grams (19.66:1).

But it was in experiment 3, when pulling under the conditions most closely approaching those in which they are usually found, that these beetles performed their most astonishing feats of strength. Their average pull in this case was 164.83 grams (158.73:1); while the maximum pull was 232. grams (211.0:1).

Experiment 4 was made to find the strength of the tarsi and the ability of the beetles to climb with a weight (Fig. 4). The individuals showed considerable variation in this respect, some being able to climb with twice the weight that would pull another down. The tarsi are slender, comparatively weak and evidently not adapted to such work; still the beetles showed themselves able to climb with an additional burden of ten times their weight.

It was noticed that the insects could crawl from under what seemed to be an almost crushed weight, so experiment 5 was performed to determine their power to lift weights upon their backs. The thread fastened around the pro-mesothoracic constriction as before was passed down through a slit cut in a piece of cork, upon which the beetle stood and attached either to the platform to receive the weights or to the spring previously described. Although laboring under the decided disadvantage of having the weight suspended from the most slender part of their bodies, they still cleared their abdomens from the cork while lifting a weight of 104.67 grams (100.78:1).

In a single trial one specimen succeeded in crawling along a sheet of cork with a weight of 700 grams placed upon a small platform upon its back; but 750 grams held it still. These weights seem sufficiently enormous to crush the little creature, although the beetle used showed no ill effects from the great pressure. The ability of these insects to support such weights is undoubtedly due to the unusual hardness of their exoskeleton: a character in which there exists wide variation, however, within the limits of this species.

The last experiments—6 and 7—were suggested by the ten-

dency which the beetles showed to lift by their heads, obstacles under which they desired to crawl. In each experiment the beetles were suspended horizontally from the clamp upon a ring-stand by the tip of the abdomen and the pro-mesothoracic constriction (Fig. 5). In experiment 6 they were not allowed to touch anything with their legs. The platform upon which the weights were placed was suspended directly from the head, the thread being fastened around the head just behind the eyes and the horn, the height of the beetle being adjusted by the clamp, so that when the head was lowered the platform would rest upon the base of the stand. Weights were then added as long as the beetle was able to lift the platform clear of the stand. In this way, by the pro-mesothoracic muscles alone, the weight lifted averaged 36.83 grams (35.41:1).

The 7th experiment was performed under the same conditions as the 6th, except that an opportunity was given the beetles to use their forelegs by bracing them upon a piece of cork adjusted to the correct height by another clamp upon the ring-stand. This additional condition increased their lifting power to an average of 127.5 grams (122.79:1). This experiment shows great power in the forelegs.

A single trial was made with one beetle to get an idea of what the strength exerted in pulling would mean if measured in the usual way as drawing a load. The "cart" consisted of a pane of glass moving freely upon four $\frac{1}{4}$ -inch steel balls placed on top of the table. The beetle, pulling upon a cork surface as in experiment 1, was harnessed to the glass loaded with weights. The table top was not perfectly horizontal, as was shown by the "cart" moving more easily in one direction than in the other, but this inclination was not sufficient to continue the motion of the load after it was started down it. The beetle was, however, made to pull its load up this slight inclination, and thus, with the conditions rather against it, the beetle succeeded in pulling the apparently enormous load of 1250 grams (1116:1). When given the additional advantage of pulling under the more natural conditions of its burrow, the same beetle easily pulled a load of 3214 grams (2870:1). While the last figures are astonishing, they give a

less exact idea of the real strength exerted by the insect than do the preceding figures. The average dimensions of the sexes, obtained from measurements of four males and four females that were used in the experiments, were as follows: Length, males, 3.115 cm.; females, 3.32 cm.; breadth, males, 1.065 cm.; females, 1.14 cm.

The average weight of all the specimens used during all of the experiments was found to be 1.0384 grams.

The six beetles put through all of the experiments continuously lost an average of 2.89 per cent. of their weight during the time of the work; while the two beetles used as checks lost only .62 per cent. in the same time. Still no relation could be seen between the percentage of weight lost and the amount of work done.

No secondary sexual characters were found which could be relied upon to distinguish the sexes, but upon dissection of eleven of the beetles used it was found that seven were males and four were female. While the largest beetles were females and the smallest were males, those of medium size might be of either sex.

When subjected to interference or restraint, the insects, both males and females, produced a sharp, intermittent, hissing stridulation.

In closing, I wish to express my thanks to Professor C. H. Fernald and Dr. H. T. Fernald for their encouragement and assistance in the preparation of this paper.

EXPLANATION OF PLATE X.

1. Dorsal view of *Passalus cornutus* Fab., natural size.
2. Apparatus used in experiment 1.
3. The artificial burrow used in experiment 3.
4. Apparatus used in experiment 4.
5. Apparatus used in experiment 6.

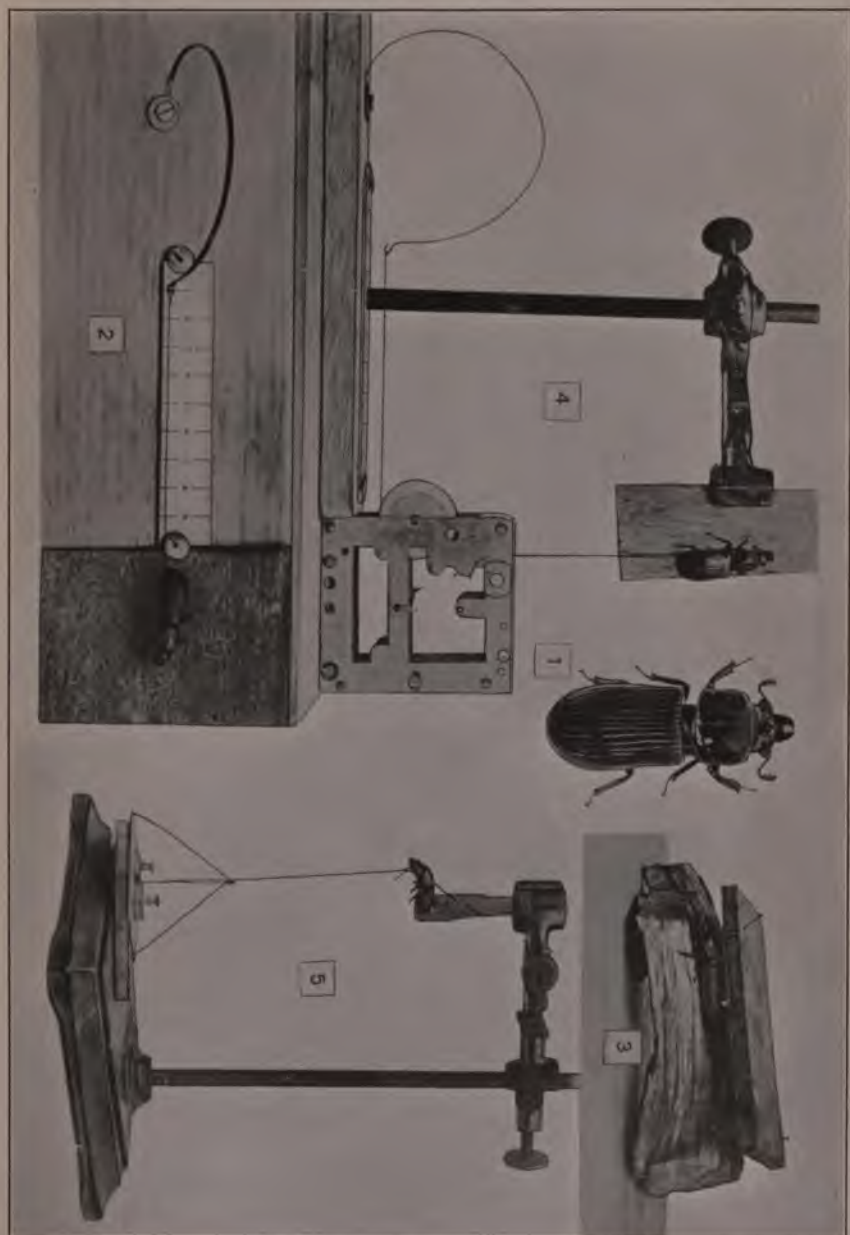
"Em'nent foreign scientists have found out that a grasshopper's ears are in its legs."

"How did they ascertain that?"

"They put the 'hopper' on a board and tapped the board gently."

"The creature hopped away. Then they cut off its legs, put it on a board again, and tapped the board as before, and it didn't hop away. It couldn't hear the tap, you see."

"What a wonderful thing science is."—*Chicago Tribune*.



STRENGTH OF PASSALUS CORNUTUS (HINDS).



Pupa of *Necrophilus hydrophiloides*.

F. E. BLAISDELL, M.D., San Francisco, California.

Family SILPHIDÆ.

Order **COLEOPTERA**.

Length 9 mm.; width 5 mm.—Ovate, slightly elongate; head flexed upon mesosternum; abdomen depressed and curved ventrally; color creamy white; appendages and expanded pronotal margins semi-translucent; eyes castaneous. Head entirely hidden by pronotum when viewed from above; interocular region just perceptibly convex, smooth, marked with slight depressions; maxillary palpi reaching nearly to posterior borders of middle coxæ. Antennæ curving backwards, first two joints passing around lower border of eyes, succeeding joints passing along sides of prothorax, curving over distal ends of anterior and middle femora, last two joints becoming visible beneath posterior angles of pronotum and between middle tibio-femoral joints and humeri. Pronotum evenly convex from side to side; basal angles rounded; base truncate in circular arc; sides convergent anteriorly; apex feebly sinuate, with angles broadly rounded; sides explanate. Anterior coxæ hidden beneath mouth parts; anterior crura with tibio-femoral joints just beneath and posterior to middle of pronotal margins; distal extremities of tibiæ against and not extending beyond lobes of maxillæ; tarsi slightly converging to opposite middle of posterior coxæ. Mesonotum with disc evenly convex throughout; slightly opaque. Middle coxæ visible between basal joints of anterior tarsi. Middle crura flexed against sides of body and in close relation to the anterior crura; distal extremities of femora opposite to middle of posterior third of pronotal margins, extending slightly beyond; distal extremities of tibiæ distant from each other and opposite middle of metasternum laterally; tarsi converging posteriorly, not coming in contact and resting against lateral margins of wing-pads, with ungual joints over distal extremities of posterior tibiæ. Elytral pads embracing sides of body ventrally, resting upon alar pads; discal surface with the impressed striæ and convex intervals evident. Metanotum evenly convex throughout, smooth and shining, about equal in length to mesonotum. Alar pads nearly overlapped by the elytral; basal angles being visible at middle of sutural margin of elytral pads; apical one-third uncovered, reaching posteriorly to middle of hind tarsi and external to them. Posterior coxæ visible between middle tarsi. Posterior crura flexed and closely embracing sides of body; tibio-femoral joints opposite to interval between second and third abdominal segments, extending outwards a short distance from beneath elytral pads; proximal portions of femora and nearly all of tibiæ being hidden beneath alar pads; distal tips of tibiæ visible mesially, spurs nearly touching each other in middle line. Posterior tarsi separated by a small triangular space at their basal thirds, parallel, and in contact for dis-

tal two-thirds, reaching to near tips of anal appendages. Abdominal segments convex dorsally, ventrally less so; pleural regions of segments one to eight inclusive produced into conical tubercles, tipped with chitin, each bearing a moderately long, evenly recurved seta. Tubercles limited dorsally by a longitudinal depression on either side of dorsum, beginning on first segment and terminating on seventh. Ventrally the depressions are less strongly developed. The lateral tubercles on first and second segments each bear a spiracle on their dorsal surface. Ninth segment without tubercles, but support two caudal appendages, which are cylindro-conical, each tipped with a long spine, which curves inwards and ventrally. Anal segment terminates in two short contiguous, conical processes, each tipped with chitin. Apical margin of pronotum at either side of middle fifth bears a small chitinous tubercle, each supporting a long double curved corneous spine, both together resembling the sides of a lyre. Pronotum fringed with a submarginal row of recurved chitinous setæ. Dorsally the posterior borders of segments 5, 6, 7 and 8 fringed with a single row of slender setæ, which become advanced on segments 2 and 3, while on the first segment they approach the centre. On metanotum the transverse row is interrupted at middle, with a few irregularly placed setæ on either side of centre of disc. Central area of mesonotum bears a number of fine erect delicate hairs.

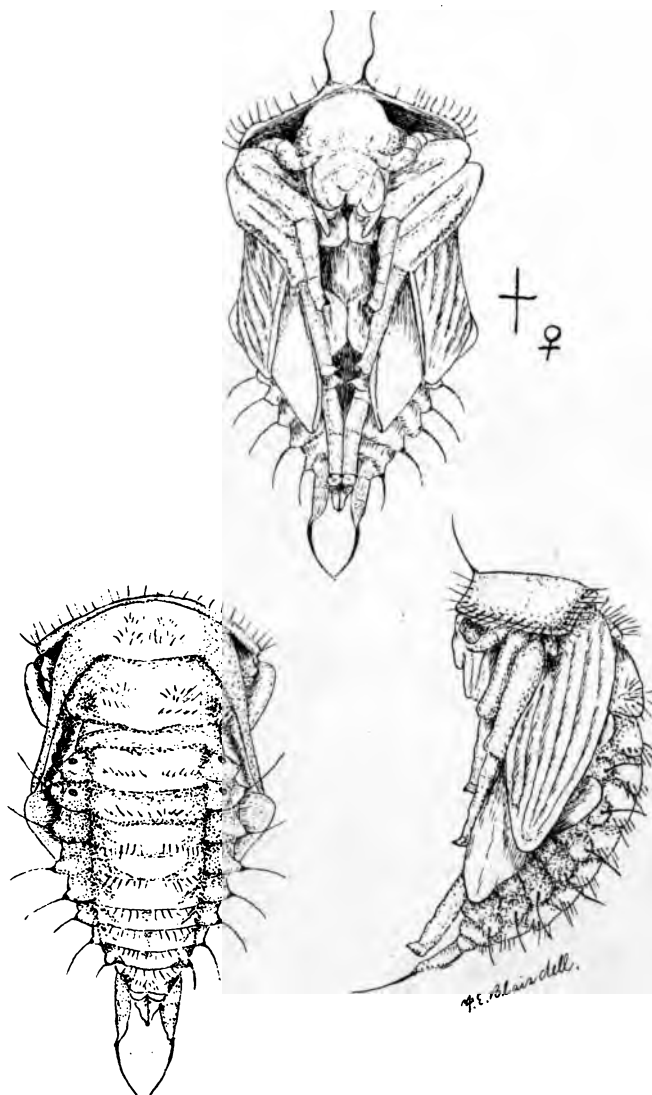
Described from the pupa of a ♀ taken from beneath an old water-trough in low, damp, marshy ground, at the Presido, San Francisco, California. Collected January 1, 1901.

The pupa was about one-half inch below the surface of the ground, in a delicate earthy cell hollowed out in soft light loam. Many imagos were about at the time. The drawings accompanying this article show all of the characters mentioned in this description.

New Lepidoptera from Bolivia.

By A. G. WEEKS, JR.

Hymenitis andreas sp. nov.—Head black, with four white specks on "collar." Also a white speck at each eye and two others at junction of each antennæ. Thorax and abdomen above nearly black; below nearly white. Antennæ black. Legs black, grayish underneath. Forewings transparent, with a greenish blue lustre, as is prevalent in species of this genus. The inner marginal area is black. The costa is black, and at end of discoidal space the black extends downwards to a point at lower end of discoidal space, this black triangle being nearly a quarter inch wide on its costal edge. Outside of this is a band of white scales running from costa downwards across end of discoidal space and terminating next to



PUPA OF NECROPHILUS HYDROPHILOIDES (BLAISDELL).

the lowest submedian nervule. The black of the costa broadens to a sixteenth inch in width outside the white band, turning at apex and continuing downwards along hind margin and joining the black of the inner marginal area at lower angle. At the lower angle, in interspace above the lowest submedian nervule, there is a mere suggestion of a dash of white scales. The nervures and nervules are all black. Upper side of hind wings transparent, with lustre as above noted. Costal area black. Hind margin with a black border one-sixteenth inch wide, lessening and dwindling to a thread towards submedian nervure. At apical angle there is a very slight, light brownish dot. The underside of forewings is identical with upper surface, except that the black portions are reddish brown, bordered by a darkish thread. The inner marginal area, however, is black. There is also a suggestion of three interspacial white dots at apex. Underside of hind wings is the same as upper surface, except that the black portions are reddish brown, bordered on the basal side by a black thread. The hind margin, also, has a black thread at its edge. The brown spot at upper angle on forewings is white on the under surface. Expanse 1.90 inches.

Hab.—Bolivia, five days' travel north from Cochabamba.

Described from seventeen specimens taken September 12, 1899. A duplicate has been found in a European collection, taken also in Bolivia, but unnamed.

Thecla infrequens sp. nov.—Head, thorax and abdomen above blackish, covered with blue-gray hairs; beneath light grayish brown. Antennæ black, with white annulations at the base of each joint. Club black. Legs light grayish brown. Upper side of forewings bronzy brown, with some lustre. There is an indistinct large discoidal spot of blackish. Basal area in certain lights seems brighter than rest of wing. Hind margin has a slight fringe, lighter than ground color. Hindwings same color, excepting lower half, which is light purplish blue. The edge of this blue area is bounded by a line drawn from base along subcostal nervure to centre of wing, then downwards to median nervure and following that to hind margin. Hind margin has fringe as on forewings. The purplish blue area is broken as it reaches hind margin by interspacial lunules of ground color. Inner marginal space light gray. Underside of forewing light soft brown. Hind margin has a dark thread within the fringe. Beginning at costa, one quarter distance from apex to base, and extending downwards to lower submedian nervule, is a line of interspacial dark brown spots suffusing towards the base of wing. There is a slight space of ground color outside of these spots, followed by a white line running from apex downwards to submedian nervure, parallel to hind margin, and one-sixteenth inch within it. The space between this and hind margin is dark brown. Inner marginal space light gray. General ground color of hind wings, underneath, is a rich dark brown. Basal area is somewhat lighter, but with a

dark brown spot near costa. Outside of this spot is a dash of whitish scales. Running from apex across to inner margin, near its base, following contour of hind margin, is an irregular dark brown line. Outside of this line the ground color lightens, being very light at hind margin, dashed with whitish scales and showing a few indistinct interspatial dark lines. The fringe of hind margin is nearly white. Expanse .90 inch.

Hab.—Bolivia, near Cusilluni.

Taken in May, 1899. Described from three specimens in my collection.

Thecla dickiei sp. nov.—Head and eyes black. Antennæ black, with white annulations at the base of each joint. Club black, with orange tip. Thorax above covered with blue-gray hairs; below grayish brown. Abdomen blackish above, grayish brownish beneath. Legs black, with white annulations at ends and centre of each joint. General color of wings above nearly black. The upperside of forewings is entirely black, including costa, except a brilliant dash of lustrous blue within a line drawn from base through centre of discoidal space, then turning downwards to inner margin. The blue occupies about one-third of wing area. The lower wings are black, with the brilliant blue space of forewings repeated, but covering only the basal quarter of the wing and not encroaching on inner marginal space. Extending from the end of lower median nervule is a delicate tail, black, with a white tip, about one-eighth inch long, and from the nervule next above another, one-sixteenth inch long, with a white tip. At anal angle is a small dot of rust color. The hind margin is edged with a fine black thread. Both hind margins bear a slight fringe of gray-brown hairs. The ground color of underside is a dead grayish brown. One-sixteenth inch within hind margin of forewing is an indistinct whitish line running downwards from about the third subcostal nervule to the inner margin, bordered on the outside by an indistinct line of dark grayish brown. Another and prominent white line runs from costa (at a point one-third distance from apex to base) downwards to the lowest median nervule. This line is distinctly edged with black on basal side, and forms the most prominent feature of the wing. Starting from lowest submedian nervule, one-sixteenth inch inwards from end of line just described, is another similar line running to inner margin. There is also a linear white dash across outer border of discoidal space. The prominent white line of forewings extends downwards through the hind wing to the lower median nervule, and thence jaggedly to inner margin, forming a **W** in anal angle area. The marginal indistinct white line of forewings also extends through hind wing, swerving inwards at lower portion and joining the first mentioned line at the lower median nervule. Below this point of juncture, in the interspace, is a prominent rust-colored spot, with a black speck at its lower edge. At the anal angle is a black spot with an adjoining semi-circle of white above it, and above that a semi-circle of rust color, which extends upwards along inner margin. The border of hind

margin, for one-sixteenth inch inwards, is dusted with light brownish scales. There is a whitish indistinct line across outer border of discoidal space. Expanse 1 inch.

Hab.—Bolivia, near Coroico.

Taken by Mr. Gerhard in May, 1899.

***Pamphila cusilluni* sp. nov.**—Head and palpi above dark brown; beneath brownish gray. Antennæ black, lighter beneath. Club black, with lighter tip; beneath grayish. Thorax dark brown. Abdomen dark brown above, light brown beneath. Upperside of both wings dark bronzy brown, with some lustre. The discoidal space of forewings has an indistinct longitudinal blackish dash. Hind margins have a slight fringe of hairs, of ground color. On underside of forewings the marginal fringe is dark brown from apex to centre of wing, and from that point to lower angle it is grayish. On costa, one-sixteenth inch from apex, is a small white spot, and in interspace below it another one, both being practically at the very apex. Below these are a series of interspatial dark rust-colored dashes, ending at central portion of the hind margin, most prominent near apex, the apical area consequently appearing rust colored. Within these, and starting at apical white spots, is a triangular space, heavily dashed with white scales. The inner two-thirds of the wing is dark blackish brown. The ground color of underside of hind wings is rich brown, with a suffusing band of white. This band, with its basal side on a line drawn from centre of costa to near the joint on inner margin, is pure white, suffusing towards hind margin. It forms the prominent feature of the underside markings. Expanse 1.12 inches.

Hab.—Bolivia, near Cusilluni.

Taken in May, 1899. I have placed it in the genus *Pamphila*, rather than to introduce a new genus, which, however, seems warranted.

The Proper Names of Certain Genera of Hymenoptera.

By WILLIAM J. FOX.

The prior use by Schneider* of the term *Pompilus* for a genus of cuttle-fishes makes it necessary to adopt another name for the long-established genus of wasps, *Pompilus* Fabricius. The latter was described in 1798, and included then thirty-seven species. By elimination the included species are

* *Sammlung vermischter Abhandlungen der Zoologie und der Handlungsgeschichte von Johann Gottlob Schneider, 1784.*

P. viaticus (L.) Fabricius, *P. Gibbus* Fabr., and *P. pulcher* Fabr. [*P. plumbeus* Fabr.], the selected type being *P. viaticus*.

In view of the necessity of adopting the first of the subgeneric terms subsequently applied to species of *Pompilus* Fabr., it is at once evident that the type of that subgenus becomes the type of the collective genus, and *Pompilus viaticus* is thereby removed from further consideration as a generic or subgeneric type.

From the facts at hand, *Aporus* Spinola (1808) supersedes *Pompilus* Fabricius, and the type of the genus becomes *Aporus unicolor* Spinola.

Anoplius Dufour (1833), being synonymous with *Pompilus* Fabricius, may be resurrected and used in a subgeneric sense for typical *Pompilus* Fabricius, with *Anoplius nigerrimus* (Scopoli) [*Pompilus niger* Fabricius] as the type. Dufour became authority for *Anoplius* inadvertently; for having received from Lepeletier de St. Fargeau specimens labelled *Anoplius niger*, "et d'autres species," with that generic application, thereby presuming it had already been described,* he indicates, as the type of *Anoplius*, the *Pompilus niger* Fabricius. Lepeletier de St. Fargeau did not describe the genus until 1845. This incident shows one of the disadvantages of disseminating manuscript names—a practice even now too much in vogue.

The relegation of the term *Pompilus* requires that another family name replace the term Pompilidæ, and, basing the new name on the first-described genus, *Ceropales* Latreille (1796), the family name should henceforth stand as Ceropalidæ. Ashmead has already called attention to the fact that *Ceropales* Latreille antedates *Pompilus* Fabr., but, from sentiment, does not adopt Ceropalidæ. Strict adherence to priority is the only means by which zoological nomenclature will become stable.

Salix Schrank (Fauna Boica, I, 1798) has priority over *Salix* Fabricius (Syst. Piez, 1804), the former being a genus of beetles. The type of *Salix* Fabricius is *S. bicolor* Fabricius.

The name adaptable for *Salix* Fabricius is *Cryptocheilus* Panzer (Krit. Rev. Insekt. Deutschl., II, 120, 1806), the type being *Cryptocheilus annulatus* (Fabr.) Panzer.

* See *Annales Soc. Ent. France*, II, 483, 1833.

Guerin's genus *Tachypterus* has been generally called *Trachypterus*. The former is the original spelling, and should not have been emended. Moreover, such emendation in this case would require that Guérin's term be dropped, as *Trachypterus* Gouan (1770) would have priority.

Monedula Latreille (1804) is preoccupied by *Monedula* Hasselquist (1762). Illiger (in *Rossius, Fauna Etrusca*, vol. 2, 1807) was aware of the prior use of the term in Ornithology, and proposed the name *Stictia* to replace *Monedula* Latreille. Illiger's term should be therefore adopted for this genus.

Monedula has sometimes been credited to Coquebert (1798), but this is an error.

Contributions to the Odonata of Maine.—IV.

By (the late) F. L. HARVEY, Orono, Me.

(Continued from page 243.)

71. *Ophiogomphus johannus* Needham.

We took two males of this species at Chemo stream, Bradley, Me., July 4 and 11, 1899. They were flying over swift water and alighting on rocks projecting above the water. No females were seen. The original description was drawn up from a single teneral male. Our specimens are mature and in full color. We are able to add the following notes:

Thorax grass green. The median dorsal fuscous stripe is apparent the whole length of the carina and broader *anteriorly*. The humeral and antehumeral stripes *not* fused, but separated the whole length in one specimen and only slightly fused at the posterior end on one side of the other. The antehumeral stripe broadest anteriorly narrowing backwards to a point, separated from the humeral by a green stripe of its own width. Sides of thorax grass green above and paler toward the base of the legs. Wings slightly smoky. The appendages agree closely with Needham's description and figures, excepting that the lateral tooth on the lower appendage is more prominent, and the tip of the superior, in profile, is transversely notched showing in side view an inferior and a superior tooth, the latter longer.

We have a single female *Ophiogomphus* taken behind the town building in Orono, June 16, 1898, by my daughter, Florence Harvey. It is different from the females of *O. ano-*

malus, *aspersus*, *carolus* and *rupinsulensis*, species of which the males have been taken in Maine. As we have also taken *O. johannus* about Orono, this specimen may prove to be the undescribed female of that species.

[I have examined this female carefully, and have compared it with a female *carolus* given me by Prof. Needham. I can find no differences except that the pale colors of the former on head and thorax are bright green, and that the yellow spots on the sides of 2-7 are somewhat larger. Of course it may still be the female of *O. johannus*.—P. P. CALVERT.]

25. **Gomphus navius** Hagen.

This species proves to be fairly abundant at the original locality, we having taken about seventy-five specimens in the last three years. Females are scarce; few are seen and only half a dozen have been taken. They fly much more swiftly and irregularly than the males, darting about over the pool ovipositing here and there, and in a moment are gone into the bushes. The species is apparently local, having never been taken on any other stream, although we have seen at Sunk Haze and Birch streams, Greenfield, what we supposed was this form.

42. **G. brevis** Hagen.

An abundant species. About forty specimens were taken in June at the locality spoken of under *O. anomalus* in this article. Later an occasional male was taken over Chemo stream, Bradley. We have no idea when the eggs are laid.

62. **Gomphus scudderi** Selys.

Between August 24, and 29, 1899, we made a special trip to Russell Stream, near Northeast Carry, Maine, to collect this species. It was at this locality that in 1897 we took the single male from which our description was drawn up. We followed the stream up and down for two miles, several times a day, for two days, and succeeded in taking about fifty specimens, nearly all males, but one pair *in coitu*. From the additional material we are able to make the following notes: The length varies from 53 to 59 mm. The male taken *in coitu* and several others lack the spot on the base of the dorsum of 9; in others it is

smaller than indicated in our original description and figure, while in several others it agrees with that account. The spot on the side of 9 sometimes lacks the tail.

Russell Stream, excepting near the mouth, has numerous sandy beaches, bars and low grassy islands just above low water mark. On these the *Scudderi* alight close to the water's edge, in the middle of the day, but, toward evening, they settle on the low bushes on the sunny side of the stream. They are wary and hard to approach. By scaring them away, crouching near their favorite alighting place and waiting, they would return and were taken by dropping the net over them. The females were scarce; those seen were ovipositing in swift shallow water with a pebbly bottom, or flying over the stream. They would dart out of the bushes, make a dive for the water, dip the abdomen down two or three times in quick succession, then fly into the bushes usually out of reach. One female came buzzing about our head and was captured and the pair *in coitu* came in reach of the net while flying by. Associated with the above were *O. rupinsulensis*, *Boyeria venosa* and *Aeschna constricta*, the latter in great numbers.

72. *Dromogomphus spinosus* Selys.

A single male taken August 16, 1899, at Pushaw Pond, Old Town, Maine. Some alighted on a large rock by a sandy beach (Harvey).

Subfamily 4, CORDULEGASTERINÆ.

73. *Cordulegaster* (*Tæniogaster*) *obliqua* Say.

♂ Total length 70 mm., abdomen 54 mm., hind wing 44 mm., alar expanse 93 mm. Occiput yellow, quadrangular, one of the angles making the highest central point; a dark cluster of black hairs at the base next the eye, at the base behind a median dark spot. Frons yellow, bordered with brown near the post-clypeus and at the sides near the eyes. Post-clypeus yellow, ante-clypeus pale brown with a small yellow spot on each side near the outer edge. Labrum yellow, bordered narrowly with brown and a narrow line of brown extending nearly to the middle from above. Base of mandibles yellow, remainder dark brown or black. Other mouth parts pale brown. Next to the occiput bordering the eye as far as the middle a black band. Remainder of back of head brown.

Thorax brown. Antehumeral stripe yellow, cuneiform, the point anterior. These stripes are crossed by a few pale brown veins. Sides with two yellow

bands, edged with black stripes, located on mesothorax and metathorax opposite to the bases of the wings. A yellow spot at base of second pair of legs. Yellow spot on dorsum between fore-wings and twin spot between base of hind wings.

Legs black, except bases of femora, which are brown.

Abdomen brown at the base but gradually changing to black toward the apex. Gradually widening from 3 to 8, but not conspicuously dilated as in *C. maculatus*. Yellow spots on the dorsum of 1-9, that on 1 a transverse band, those on 2-8 sagittal, the points caudad. The spots on 2 and 3 extending the whole length of the dorsum, the others basal and gradually shortening. The one on 8 broader and with a blunt point. The spot on 9 quadrangular, brighter yellow, nearly half the length of the segment. The tenth segment entirely black. Dorsum of abdomen covered with black granules which show conspicuously on the dorsal spots. There is a little yellow on the sides of segments 1-3 near the ventral suture, and the auricles are pale. No other markings on the sides of the segments. There is a twin yellow spot on the base of venter of 8 and sometimes lighter ventral areas on 8-9.

Appendages black; the superiors about the length of 10, divergent, trigonal, a basal tooth beneath, the terminal fourth abruptly narrowing to the acute apex, appearing obliquely truncate. Inferior appendages quadrangular, tuberculate above at the outer angles, slightly emarginate at the apex, thickened at the end, in side view appearing obovate.

♀ Total length 78 mm., abdomen 60 mm., hind wing 52 mm., alar expanse 108. Occiput as in the male excepting a narrow, better-defined dark line running from the sides on the crest which bears a black tubercle. Frons dark brown excepting a yellow patch on the back. Post-clypeus yellow, ante-clypeus dark brown. Labrum yellow, bordered in front with dark brown, a pale brown line extending from the base half way down the middle. Cheeks yellow; mouth parts brown, excepting the ends of the mandibles which are black. Back of head as in the male. Thorax as in the male.

Abdomen darker toward the posterior end, not dilated behind but about the same width from the fourth segment to the end. Yellow dorsal spots on segments 1-8 much like those on the male. The suture between 8 and 9 bears seven narrow, brown longitudinal bands, one on the dorsum and three on each side. Dorsum of 9 black, but the sloping places on each side pale brown. Dorsum of 10 and the upper surface of the appendages paler. Sides of 1-3 bordering the ventral suture yellowish-brown. A brown twin spot on the ventral base of 8. Black granules on abdomen as in the male. Appendages brown, as long as 10.

Described from about twenty males and two females taken from June 8th to July 15th, at Orono in open woods, and over a brook in Bradley by F. L. Harvey. None were *in coitu*, but the female taken in the woods was with a male which was

taken. The males were very abundant over a meadow brook in Bradley in July, when twenty-five were taken. We saw two females seized by males and immediately the pairs left the brook and went sailing over the field out of sight.

The average of many Maine male specimens gives alar expanse 93 mm., total length 70 mm., antecubitals 19-20, postcubitals 12-13. Ours are as large as Ohio specimens according to Kellicott. The females from Maine are much larger than the males, viz.; alar expanse 108 mm., total length 78 mm., antecubitals 22, postcubitals 14, but these are not as large as Say's specimens. Possibly the cold climate may make the specimens smaller. Maine specimens of *C. maculatus* are much smaller than in Hagen's description. The females of this species are also much larger than the males.

45. *Cordulegaster diastatops* Selys.

This species, reported as scarce in a previous article, has been found abundantly. It was taken in July flying with *C. obliqua* over a brook in Bradley.

Subfamily 5, *ÆSCHNINÆ*.

74. *Epiæschna heros* Fabr.

A single female taken July 4 at Chemo Mills, Bradley, over the water (Harvey). The frons above in one specimen has *not* a well marked black T-spot, the center above is dark, and on each side of the dark area near the anterior border is a circular green spot; the vertex is black with a heart-shaped green spot in the center; the abdomen has only green, *no blue*.

41. *Boyeria vinosa* Say.

This species was abundant in August about the dams, falls and swift water on the Wissattiquoik nearly to the base of Mt. Ktaadn, also on the upper of the three ponds near the South Basin. It was also plentiful on Russell Stream, August 25-29, 1899, following the banks, minutely inspecting the indentures of the shore and closely examining every old log and bush, as though in quest of something. It is a busy species, flying near the water and, although not wary, is rather hard to catch. The males were fully ten to one female.

18. *Eschna constricta* Say.

Taken September 4th at Six Ponds near the base of Mt. Ktaadn. The female was observed submerged up to the head, laying eggs upon a water plant. Abundant the last of August on Russell Stream and the West Branch at Northeast Carry, also on the summit of Mt. Kineo, Moosehead Lake.

21. *Eschna clepsydra* Say.

With the above at Six Ponds, abundant.

16. *Anax junius* Drury.

Not abundant about Orono. Several seen June 13, 1899. The spot on the front above is black. The rings said to surround this spot are interrupted for a considerable distance at the back. The inner ring is yellow, not green. The outer ring is blue only in front and fuscous at the sides. The blue does not extend beyond the 6th segment of the abdomen. Segments 7-10 bear pale green spots on the sides. The remainder of the surface black, gradually becoming brown on the 10th.

Subfamily 6, CORDULINÆ.

74. *Macromia illinoensis* Walsh.

This beautiful species was taken in considerable numbers from June 15th to July 15th at Orono and Bradley. The Orono specimens were taken in open woods along roads, the Bradley specimens along the Penobscot River. They were flying up and down the rocky shore. We waded out to their line of flight and took ten in one hour. The specimens are quite variable as to the spots on the abdomen. Eight specimens examined had two spots on dorsum of 2. Usually no dorsal spots on 5 and 6, but one male and one female had dorsal spots on these segments. All the males examined had two spots on dorsum of 8, but only one female was so marked. Yellow spots on thorax at dorsal base of wings. Wings sometimes hyaline, often fumose throughout.

66. *Cordulia Shurtleffi* Scud.

Taken in 1898 in Bradley over a small meadow brook. We have taken only two specimens.

75. *Tetragoneuria spinigera* Selys.

This has been reported from Manchester by Miss Wadsworth. We found a single female, July 8, 1898, at Chemo Stream, Bradley.

76. *Neurocordulia yamaskanensis* Provancher.

On June 8, 1898, a single female was taken in a pasture near the border of woods, and the same evening my son, R. H. Harvey, took a single male a mile away in a similar situation. At the same locality, and nearly the same date, in 1899, we took four males and one female. We are not aware that any other specimens excepting those taken by Abbé Provancher at Mt. Yamaska, Province of Quebec, in 1875, are in collections. Our specimens are the first taken in the United States, and the species may be looked for in other States bordering on Canada.

64. *Somatochlora elongata*, var. *minor* Calvert.

Early in July, 1898-9, fully thirty males were taken over a small brook in Bradley, which rises in the woods, traverses a pasture and meadow and empties into the Penobscot opposite Orono. In July the brook is reduced to isolated pools, and in very dry seasons is dry in August. We have also taken a few on Vinal Brook, on the west side of the Penobscot, a mile above. They fly over the brook and alight on the grass occasionally, but are usually balanced over the pools, or close to the water between the grassy banks, and, wary as hawks, requiring a very swift swing of the net and a sure aim. We have searched this brook day after day for females and saw only one; it was ovipositing and left for haunts unknown before we could catch it.

77. *Somatochlora septentrionalis* Hagen.

A single ♂ was taken at Orono, June 18, 1898, over a small bog by my son, Bartle Harvey. This species, so far as we know, has never before been found in the United States. The locality was visited in 1899 but none were seen.

78. *Somatochlora Walshii* Scud.

Taken along the Stillwater River at Orono early in June a single male, and abundantly early in July, 1898-9, over a meadow brook in Bradley (Harvey). In two days we took over twenty-five specimens, all males and saw no females.

This species was associated with *S. elongata* var. *minor* and *Cordulegaster obliqua*.

27. ***Somatochlora libera*** Selys.

A single specimen taken at Orono early in June by Bartle Harvey.

Subfamily 7, LIBELLULINÆ.

31. ***Libellula 4-maculata***, var. ***prenubila*** Newm.

A single specimen of this variety taken at Orono in 1898. The species is very common, the variety rare (Harvey).

79. ***L. semifasciata*** Burm.

A single specimen taken over a small pond, 1898. During June and July, numerous specimens were taken at Orono and Bradley (Bartle and F. L. Harvey).

80. ***Celithemis ornata*** Rambur.

A single specimen taken at Chemo Pond, Bradley, August 20, 1899, by Bartle Harvey. We saw several specimens the same day, but they were flying over the pond and would not come near the boat. Our specimen had the color at the base of the wing solid, and seemed to be the dark form spoken of by Dr. Calvert. This species was flying with *C. elisa* Hagen.

51. ***Leucorhinia frigida*** Hagen.

A single specimen taken at Chemo Stream, Bradley, July 11, 1899. This is the latest species of the genus to appear. It is on the wing after the others have gone. Scarce, only two specimens taken in ten years' collecting.

81. ***Leucorhinia glacialis*** Hagen

Two specimens, male and female, taken at Orono, June 7, 1898. A single specimen taken June 2, 1899, at Chemo Stream, Bradley. A rare species in Maine.

38. ***Sympetrum semicinctum*** Say.

Chemo Stream, Bradley, September 13, 1899. Several specimens.

82. ***Sympetrum obtrusum*** Hagen.

A single specimen taken at Fryeburg, Me., August 10, 1899 (Harvey).

37. *Sympetrum vicinum* Hagen.

This species is the latest one of this genus on the wing in Maine. Specimens were taken at Ktaadn Iron Works, October 14, 1899, and we have seen them as late as November about Orono. Many pairs were seen mating and ovipositing at Chemo Stream, October 8, 1899.

36. *Sympetrum rubicundulum* Say.

Common on Russell Stréam the last of August, 1899. Several specimens seen August 24th on the top of Mt. Kineo, Moosehead Lake. On the shore of Moosehead Lake, by a small pond near Cliff Beach, we saw several hundred pairs mating. We have never before seen so many specimens together of any species.

Odonata Collected at Fryeburg, Me.—Between August 9th and 12th, we were at Fryeburg, Me., and spent one forenoon along the old river ponds, to the west of the present channel of the Saco River, collecting Odonates. The locality is close to the New Hampshire line, and the species will be interesting as representing an extreme western Maine location. The species observed were as follows: *Lestes disjunctus*, *forcipatus*, *rectangularis*, *vigilax*; *Nehalennia irene*; *Enallagma Hageni*; *Ischnura verticalis*; *Libellula pulchella*; *Sympetrum rubicundulum*, *vicinum* and *obtrusum*.

Lestes vigilax seems to be a western Maine species, as it has not been taken in the Penobscot valley. The only other Maine locality we know for *Sympetrum obtrusum* is York Harbor (Moore).

THE END.

A New Pammegischia.

By WILLIAM H. ASHMEAD.

Dr. E. P. Felt, State Entomologist of New York, has recently sent to Dr. L. O. Howard, a parasite bred from a horn-tail saw-fly *Xiphidia provancheri* Cresson, which proves to be a new species in the rare genus *Pammegischia* Provancher.

It is here described at the request of Dr. Felt.

***Pammegischia xiphydriæ*, new species :—**

♀. Length 7.5 mm.; ovipositor about two-thirds the length of the abdomen. Black, with the first segment of the abdomen red, the second joint of the front and middle trochanters and bases of their tibiæ testaceous, the remainder of legs black (all, however, are broken off about the middle of the tibiæ, so that I am not quite certain that the tips of the tibiæ and the tarsi are black). The head is quadrate, above smooth and highly polished with only a few scattered punctures; in front, below the front ocellus to the insertion of the antennæ it is transversely rugulose; while beneath the antennæ, except the lower inner angles of the malar space, which are smooth and polished, it is closely irregularly punctate. The mandibles are black with a rufo-piceous tinge basally. Palpi fuscous. The thorax is rugosely punctate, the mesonotum with numerous transverse ridges and with complete parapsidal furrows. Wings hyaline or at most only faintly tinged, the stigma and veins being black or brown-black, the first recurrent nervure being received by the second cubital cell only a little beyond the middle, while the third cubital cell is more or less divided into two by a spurious stump of a vein which originates from the cubitus a little before the apex of the second recurrent nervure. All the coxæ are black and rugulose, the hind pair being elongate and produced beneath into a triangular process that extends far beyond the insertion of the trochanters. The abdomen is highly polished, impunctate, except at its extreme base, and shaped as in *Aulacus* or *Pristaulacus*, only that it is not so distinctly petiolate, the first segment occupying fully half its whole surface.

Type.—Cat. No. 5782, U. S. N. M.

Hab.—Saranac Inn, New York.

Hort.—Hym. : *Xiphydria provancheri* Cresson, living in birch twigs (Dr. E. P. Felt).

For a generic synopsis of the Subfamily *Aulacinæ*, to which this genus belongs. See my classification of the Ichneumon Fies, or the Superfamily Ichneumonoidea*, p. 8.

The following North America species, described under the genus *Aulacus* Jarine, should be placed in the genus *Pristaulacus* Kieffer, viz., *Aulacus fasciatus* Say, *A. abbotii* Westw., *A. niger* Shuck., *A. stigmaterus* Cr., *A. consors* Cr., *A. editus* Cr., *A. montanus* Cr., *A. rufitarsis* Cr., *A. occidentalis* Cr., *A. firmis* Cr., *A. bilobus* Prov., *A. pallipes* Cr., *A. minor* Cr., *A. pacificus* Cr., and *A. meleus* Cr.

* Proc. U. S. Natl. Mus. xxiii, 1900.

On the Stridulation of *Passalus Cornutus* Fabr.

By GEORGE F. BABB, A.M., Amherst, Mass.

During the fall of 1900, a large number of *Passalus cornutus* Fabr. were taken from decaying apple, oak, chestnut and elm logs in the vicinity of Amherst. These beetles, when disturbed, all made a peculiar hissing noise which at once attracted attention.

Riley states, in describing this insect, that "a sufficiently careful examination will end in the knowledge that it is caused by the rubbing of the pygidium against the inside of the wing-covers" (Mo. Rep. iv, p. 139, 1872).

Le Conte remarks that "*Passalus cornutus* makes a loud stridulation by rubbing the acute edge of the ventral segments against the inner edge of the elytra" (Psyche ii, p. 126, 1878); and Ohaus goes to great length in a description of the abdominal pleurites and of the inner edges of the wing-covers as the factors in the production of the sound (Stett. Ent. Zeit. 61, p. 164, 1900).

Packard, in his article on "Sounds of Insects" (Text-book of Entomology), makes no mention whatever of *Passalus cornutus*.

Sharp states that "the adult insect has no sound-producing organs," and emphasizes the statement by contrasting the adults with the larvæ (Camb. Nat. Hist. vi, p. 192, 1899).

Prompted by this conflict of authorities the writer carried on at the Entomological Laboratory of the Massachusetts Agricultural College a series of carefully conducted experiments under the direction of Dr. H. T. Fernald. The results obtained do not agree with those quoted above.

It is not surprising that Le Conte was mistaken, for on the pleurites of the segments of the abdomen are plates covered with bristles directed upward and on the corresponding portions of the elytra are bristles directed downward as described by Ohaus. The interference of the bristles might naturally be thought to produce the hissing sound so peculiar to *Passalus cornutus*. This impression would be strengthened by the fact that every time that the intermittent sound is heard the insect moves its abdomen upward into the cavity formed by the elytra.

After removing from live beetles all of those portions of the elytra that could be reached by the pleural plates, it was found that the insects could stridulate as loudly as before.

Following out Riley's idea, the portion of the elytra that could be rubbed by the pygidium was removed from several live beetles and the same result was obtained as in the previous experiment.

As another experiment, melted paraffin was run in between the edges of the abdomen and elytra. This on solidifying effectually prevented any motion of the abdominal pleurites or of the pygidium, but the beetles could still stridulate.

Finally beetles from which both elytra had been entirely taken away continued to produce the sound though but faintly.

It was observed that with every raising of the abdomen there was a simultaneous forward motion of the dorsal portion of the fifth segment. Here, about half way from the center to each lateral edge (see Fig. 1, A) was found an ovate area about 4.5 mm. long by 2.5 mm. at its greatest breadth and with a convex surface. This area, when magnified about 700 diameters (Fig. 2), appeared as a regularly cross-lined surface not unlike a rasp, but when examined in cross-section (Fig. 3), was seen to be closely studded with erect stout spines, their tips curving forward about .01 mm. in length at the center of the area and shorter toward the boundaries.

The only portion of the insect with which these areas could come in contact to produce stridulation were not the elytra, but the wings; and so incisions were made near the base of the elytra of live beetles and the wings removed through these leaving the wing-covers still in place. When this had been done the beetles were unable to produce any sound though they continued to move their abdomens up and down in the evident effort to stridulate.

As a final experiment fresh beetles were taken and these areas in turn were coated with paraffin and the result was silence.

The wings were found to be more strongly chitinized at the folds, and the portions of these that would come in contact with the described areas of the abdomen were covered with ridges running transversely to the axis of the body and with short spines directed backward (Fig. 4).



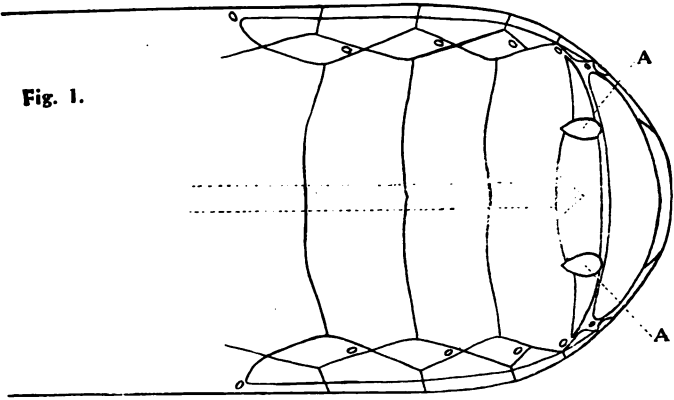


Fig. 2.

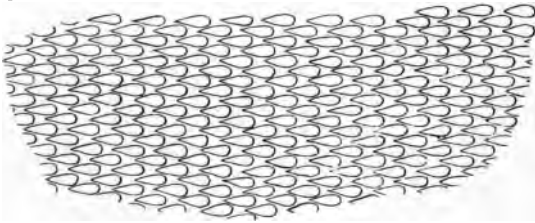


Fig. 3.

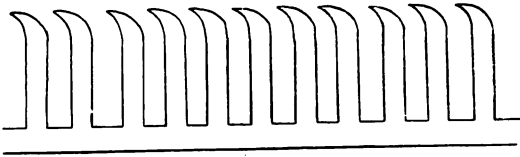
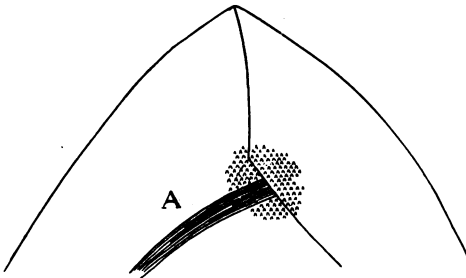


Fig. 4.



STRIDULATION OF *PASSALUS CORNUTUS* (BABB.).

Thus the wings are pressed upward against the elytra by the raising of the abdomen, the spinous areas described are rubbed across the specialized portions of the wing-folds and this process results in the production of the sound.

All the specimens studied, over a hundred in number, produced apparently the same sound. Among these occurred both males and females as determined by dissection. The observed stridulation occurred only when the beetle was disturbed. These facts would lead to the conclusion that it was evidence of the insects' displeasure at being disturbed and not a sexual call.

EXPLANATION OF PLATE XII.

Fig. 1.—Dorsal surface of the abdomen (x 11): A, stridulating areas.

Fig. 2.—Portion of surface of Fig. 1, A (x 350).

Fig. 3.—Vertical section of Fig. 2.

Fig. 4.—Under surface of the hind portion of one wing showing the part rubbed by the stridulating area (x 11): A, representing the strongly chitinized and ridged vein.

Letters from Thomas Say to John F. Melsheimer, 1816–1825.—VIII.

Philad^a March 13th 1819.

My dear Sir !

I have been so continuously occupied in preparing for our Western Expedition that I have hardly time even to write to my friend at parting. If I recollect rightly I informed you of our destination to examine all the immense Western waters—the Mississippi, its tributaries, some of the Lakes & perhaps some of the rivers still further south—Besides my own department, viz. Zoology, we shall be accompanied by a Botanist (D^r Baldwin), a Geologist & Mineralogist (M^r Jessup), & M^r T. Peale will accompany me to prepare the skins of such animals as may be discovered. Our Commander Major Long has furnished himself with the necessary instruments for Astronomical and other observations ; so that I think we shall go well prepared—Our Steamboat at Pittsburg is nearly ready & it is ordered that we depart from Philad^a in all next week—It is further determined that we shall return to Pittsb^g to winter next season—All this is *inter nos*.

I sent with the Nov^r N^o of our Journal the plate of *Cicindela* which was publishd with my Monograph of that Genus in the Philosophical Transactions of this City—The figures were drawn & the plate engraved & published during my absence in Florida, so that I had no opportunity of correcting the errors, which you would, no doubt, have detected in it had you seen the publication—fig. 10 instead of representing *C. formosa* is a meer variety of *C. pusilla* (fig. 12)—fig. 11 instead of representing *C. 10-notata* is a meer variety of *C. punctulata* of Oliv. (fig. 9.) or *C. obscura* of your Catalogue—

- | | |
|--|---|
| fig. 1— <i>C. vulgaris</i> — | } This is certainly different from the trifasciata of Europe— |
| <i>C. trifasciata</i> (Melsh. Catal.) | |
| “ 2 “ <i>hirticollis</i> — | |
| “ 3 “ <i>unipunctata</i> (Fabr) | |
| “ 4 “ <i>6-guttata</i> (Fabr) | |
| “ 5 “ <i>dorsalis</i> — | |
| “ 6 “ <i>marginata</i> (Fab) | |
| “ 7 “ <i>obscura</i> —(Fab) | |
| “ 8 “ <i>purpurea</i> | } (Fab) |
| “ <i>marginalis</i> ? | |
| “ <i>tristis</i> ? | |
| var. a.— <i>C. ramosa</i> (Melsh. Catal) | |
| “ 9 “ <i>punctulata</i> (Oliv) | |
| “ <i>obscura</i> (Melsh. Catal) | |
| “ 10 “ <i>pusilla</i> , var.— | |
| “ 11 “ <i>punctulata</i> , var.— | |
| “ 12 “ <i>pusilla</i> — | |

I lately sent the Dec^r N^o of the Journal to you, which I believe will make your series complete, as none has been since published, & whether or not, it will be continued during my absence, I cannot at present say, but if I can make the necessary arrangements for its continuance, I will certainly direct copies to be transmitted to you. In order to facilitate its publication I shall leave papers for it, on our indigenous insects of the Orders Myriapoda, Thysanoura & Arachnides—

I have also left for the Trans. Philos. Soc. an extensive paper on the Linnæan genera *Carabus* & *Dytiscus*, arranged accord-

ing to the modern improvements, in which I have taken the liberty of mentioning you & of referring to your Catalogue for all the insects of those genera which you have kindly communicated to me. I shall direct a copy of the article to be transmitted to you as soon as published which will probably be next Autumn—

Your excellent observations on the genus *Hister* I have treasured up, & shall certainly quote you for them at a future day, as well as for any other communications, which, coming from you, I shall highly appreciate.

In the interim I remain

very respectfully,

Your friend & Obd! Serv!

Thomas Say

In the June number of the *NEWS* Mr. Sidney Carpenter suggests that *Chionobas semidea* should be protected by law. I take pleasure in stating that this interesting insect is already protected by the highest of all laws (the survival of the fittest) as well as by the nature of its environment.

Mr. Carpenter's article reminds me of an incident in my own experience of collecting on Mt. Washington. One beautiful July morning I had climbed some way down from the summit in search of insects, when I came across two ladies—mother and daughter—both with butterfly nets. We were soon sufficiently well acquainted to enter into a conversation, and the ladies very earnestly urged me not to collect too many of *Chionobas*, as it would be most unfortunate to see this insect exterminated.

With all the courtesy at my disposal, I assured the ladies that I would be no party to the extermination of this species. No one, however, who had ever visited the region would have the least anxiety on the subject. There is as little danger as there would be in supposing that *Colias philodice* should be exterminated on Staten Island, since, even though the island inhabitants were all killed off, there would be numerous emigrants from the mainland. The rugged, rocky top on Mt. Washington covers an area probably never thoroughly explored by the most ardent collectors, and even were it possible to destroy all of the members of the species on this mountain, the adjacent peaks of Jefferson and Adams rarely resound to the footfalls of man, whilst *Chionobas* lies in peace and abundance on all three summits which arise above the tree line.

In addition to this, the larger number of captures are males, and when the females are taken they very nearly always have already deposited their eggs, consequently I believe there is no immediate necessity for the legislative enactment in favor of *Chionobas*.—R. OTTOLENGUI, New York, June 2, 1901.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—Ed.

PHILADELPHIA, PA., NOVEMBER, 1901.

"De esta magnífica publicacion" (*Revista Chilena*). The NEWS is as good as we can make it under present conditions. The subscription price is very low; the NEWS costs more than we ask for it. We need an invested fund for the journal of at least five thousand dollars. If any of our readers are thinking about willing a portion of their wealth for the benefit of humanity, they should remember the NEWS. Large sums of money are given for other purposes far less worthy. In the large cities, hospitals are helping to pauperize the community. The lessening of sickness and disease lies in prevention. The NEWS is doing good work in the dissemination of knowledge in regard to the carriers of disease (insects). In times of war the prevalent sickness, typhoid fever, is almost entirely due to house-flies. Bullets (lead) kill comparatively few. Malaria and yellow fever also add materially to the mortality list. The loss of service and the care of sick soldiers mean the expenditure of fabulous sums of money. The British, in the Boer war, have had over 125,000 men invalided, and we lost 8,000 by disease in our war with Spain. These diseases are preventable by a knowledge of entomology, and the NEWS supplies a medium for disseminating this information. We believe the wealthy can aid humanity by aiding the NEWS.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

PROF. SMITH informs us that the collection of the late Dr. George D. Hulst is now in his hands at New Brunswick, New Jersey, forming part of the Rutgers College Collection.

In December, 1891, Dr. Hulst gave his collection to Rutgers, but reserved to himself the right to retain any portion that he wished to study, for such period as he might desire. Pursuant to this gift the Rhopalocera, Sphingidæ, Bombycid and Noctuid families were sent to New Brunswick during the early part of 1892. The Tortricids and Tineids followed a little later, but the material was small. The Geometrids and Pyralids were retained under the reservation made in the gift, until the death of Dr. Hulst, who added largely to them during his life time. The executors did not at once deliver the collection to the College, and in the nearly six months during which it had no attention it has become somewhat damaged. Nor is the material as a whole in first class condition though much can be greatly improved. It is essentially a study collection from which wings have been taken or scraped to make out details of Venation, and other structural parts removed for mounting on slides.

In the Pyralidæ there are 496 species and varieties in 1725 specimens, and of 237 species and varieties there are types.

In the Geometridæ there are 721 species and varieties in 2115 specimens, and of these 300 or more are types. The count has been roughly made as yet, and the number of species and types will probably prove greater when all are arranged.

The collection of Rhopalocera contained 443 species and varieties in 1360 specimens; that of Sphingids 60 species and varieties in 120 specimens; that of *Catocala* 117 species and varieties in 335 specimens, and in this series are 12 types. The remainder of the collection is merely estimated as yet; but a conservative estimate places the entire collection at over 2237 species and varieties, in over 6600 specimens, with 550 types or over.

New cases are to be provided and the arrangement of the Geometrid collection will be begun as soon as possible.

It is of interest to note that Linné gave no less than three names to the honey bee. In 1746 (*Fauna Suecia*, No. 1003), he designated it as *Apis gregaria*. In his Tenth Edition of the *Systema Naturæ*, which marks the beginning of bimonial nomenclature, it stands as *Apis mellifera*; and apparently not satisfied with this appropriate name, he again changes it to *Apis mellifica* in the Twelfth Edition of *Systema Naturæ*, 1767.

Obviously, the proper name of the insect is *Apis mellifera*, and not *Apis mellifica* as it has been termed by one writer after another since Linné's time. *Mellifica* may be the more appropriate as far as meaning goes, but *mellifera* has priority by several years.—WILLIAM J. FOX.

Entomological Literature.

COMPILED BY P. P. CALVERT.

Under the above head it is intended to mention papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology will not be noted. Contributions to the anatomy, physiology and embryology of insects, however, relating to American or exotic species, will be recorded. The numbers in **HEAVY-FACED TYPE** refer to the journals, as numbered in the following list, in which the papers are published; * denotes that the paper in question contains descriptions of new North American forms. Titles of all articles in foreign languages are translated into English; usually such articles are written in the same language as the title of the journal containing them, but when such articles are in other languages than English, French, German or Italian, this fact is indicated in brackets.

4. The Canadian Entomologist, London, Ont., Oct., '01.—**5.** Psyche, Cambridge, Mass., Oct., '01.—**6.** Journal of the New York Entomological Society, Sept., '01.—**7.** Bulletins (new series), U. S. Department of Agriculture, Division of Entomology, Washington, '01.—**11.** The Annals and Magazine of Natural History, London, Sept., '01.—**12.** Comptes Rendus. L'Academie des Sciences, Paris, '01.—**14.** Proceedings of the Zoological Society of London, '01, i, 2, Aug. 1.—**15.** Biologia Centrali-Americana, London, Feb., '01, and April, rec'd. June 3, May and June, rec'd. Aug. 17, '01.—**22.** Zoologischer Anzeiger, Leipsic, '01.—**24.** Berliner Entomologische Zeitschrift, xlv, 1, June, '01.—**36.** Transactions, Entomological Society of London, '01, pt. iii, Sept. 30.—**40.** Societas Entomologica, Zurich-Hottingen, '01.—**44.** Verhandlungen, zoologisch-botanischen Gesellschaft in Wien, li, 6, August 18, '01.—**50.** Proceedings, U. S. National Museum, Washington, '01.—**54.** Journal, Royal Horticultural Society, xxvi, 1-2, London, Aug., '01.—**58.** Revista Chilena de Historia Natural, Valparaiso, July, '01.—**80.** Annali, Museo Civico di Storia Naturale di Genova (2a), xx, '01. Rec'd. Aug. 26.—**84.** Insekten Börse, Leipsic, '01.—**87.** Revue Scientifique, Paris, '01.—**108.** The Agricultural Journal, Cape Town, '01.—**130.** Proceedings, Manchester [New Hampshire] Institute of Arts and Sciences, ii, '01.

THE GENERAL SUBJECT.—**Berlese, A.** Phenomena which occur during the nymphosis of metabolic insects, **22**, Sept. 2.—**Chittenden, F. H.** Insects and the weather during the season of 1900, **7**, 30.—**Cockerell, T. D. A.** Notes on the food of birds, Bulletin No. 37, New Mexico College of Agriculture and Mechanic Arts, Mesilla Park, N. M., March, '01.—**Delfin, F. T.** The Rio Palena, notes on its natural history [in Spanish], **58**.—[**Editor.**] The entomologist's guide in the field [in Spanish], **58**.—**Thaxter, R.** Preliminary diagnoses of new species of Laboulbeniaceæ, iv, Proceedings, American Academy of Arts and Sciences, xxxviii, 2, Boston, June, '01.

ECONOMIC ENTOMOLOGY.—**Anon.** The Colorado Potato beetle in England, **4**.—**Anon.** Heartwater in sheep and goats, **108**,

Aug. 29.—**Barbey, A.** Die Bostrichiden Central Europas. Eine morphologische und biologische Studie der Familie der Borkenkäfer mit Rücksicht auf den Forstschutz. Für Forstwirte, Baumzüchter u. Entomologen. Mit 18 nach Photographien u. Zeichnungen des Verfassers ausgeführten Tafeln. Genf u. Geissen. 1901. 4to. 119 pp.—**Beach, S. A.** Recent developments in the treatment of diseases and insects injurious to orchard crops, fig., 54.—**Billet, A.** On the simultaneous appearance of mosquitos of the genus *Anopheles* and of the first cases of malaria in the Constantine [Algeria] region, 12, Sept. 9.—**Blanchard, et al.** Mosquitos at Paris, 87, Sept. 7.—**Chittenden, F. H.** Some insects injurious to the Violet, Rose and other ornamental plants: a collection of articles dealing with insects of this class, figs., 7, 27; The fall army worm [*Laphygma frugiperda*] and the variegated cut worm [*Peridroma saucia*], 7, 29; The green clover worm, figs., 7, 30.—**Forbes, E. B.** The Hessian fly [in Minnesota], Press Bulletin No. 13, Agric. Exper. Station, St. Anthony Park, Minn., Aug. 12, '01.—**Frers, C.** Report of the general enquiry into the invasions of locusts in Argentina during 1898-99 and 1899-00, 108, Aug. 1, 15.—**Gastine, G., Vermorel, V.** On the ravages of *Pyralis* in the Beaujolais and on the destruction of nocturnal moths by luminous torches fed with acetylene gas, 12, Sept. 23.—**Grassi, B.** Concerning paludism without malaria, Rendiconti, Reale Accademia dei Lincei, Rome, Sept. 15, '01.—**Hinds, W. E.** Fumigation with carbon bisulphide, 7, 30.—**v. Holub, C.** Insects as a living substratum for the cultivation of infectious diseases of man and animals, Centralblatt für Bakteriologie, xxx, 7, Jena, Sept. 10, '01.—**Hopkins, A. D.** Insect enemies of the spruce in the Northeast. A popular account of results of special investigations, with recommendations for preventing losses, figs., 16 pls., 7, 28.—**Howard, L. O.** The carriage of disease by flies, figs., 7, 30.—**Johnson, W. G.** Fumigation of nursery stock, figs.; Emory fumigator for growing trees, figs., 54.—**King, G. B., and Reh, L.** On some European and other *Lecanium* collected on introduced plants, Jahrbuch, Hamburgischen Wissenschaftlichen Anstalten, xviii, 1900. 3, Beiheft, Mitteilungen aus dem Botanischen Museum, '01.—**Lounsbury, C. P.** Tree fumigation in California, figs., 108, Feb. 14; Report of the Government Entomologist for the year 1900. Cape of Good Hope Department of Agriculture, Cape Town, '01. 5 pls.—**MacCartney, B. F.** Reports of the Economic Zoologist [for 1899 and 1900]. Some insects injurious to fruit, shade trees and clover, figs. Fifth Annual Report, Pennsylvania Department of Agriculture, 1899, pt. 1. [Harrisburg], 1900. Rec'd. Oct. 11, '01. Some insects injurious to stored grain and cereal products and to shade trees. Sixth Report of same, 1900, pt. 1.—**Mally, F. W.** Mexican cotton-boll weevil, figs., Farmer's Bulletin No. 130, U. S. Dept. of Agriculture, Washington, '01.—**Marlatt, C. L.** Some insecticide experiments, 2 pls., 7, 30.—**Massee.** South African locust fungus, 1 pl., Bulletin of Miscellaneous Information, Royal Botanic Gardens, Kew, Nos.

172-4, April-June, '01.—**Maxwell-Lefroy, H.** Insect attack on cacao trees in Grenada, Bulletin 28, Miscellaneous Information, Botanical Dept. of Trinidad, '01. (See also Bull. 29, l. c., for an anonymous note on a cacao moth of the family Tineidæ).—**Morgan, H. A.** The differential grasshopper in the Mississippi delta, other common species, figs., **7**, 30.—**Munro, A.** The locust plague [in S. Africa] and its suppression, **108**, Aug. 15.—**Quaintance, A. L.** The pickle worm (*Margaronia nitidalis* Cramer), figs. Bulletin 54, State College of Agriculture and Mechanic Arts, Georgia Exper. Station, Experiment, Ga., July, '01.—**Simpson, C. B.** Report upon an investigation of the codling moth in Idaho in 1900, **7**, 30.—**Slingerland, M. V.** A glance into the past and future, and some of the insect episodes of 1900, Proceedings, Western New York Horticultural Society, Jan. 23 and 24, '01, Rochester, N. Y.—**Treupel, G.** On malaria (swamp fever) and its contravention, Berichte, naturforschenden Gesellschaft zu Freiburg i. B. xi, 3, '01.—**Vicente.** Transmission of malaria by the scale insect *Aspidiotus nerii*, **87**, August 17.—**Webster, F. M.** The southern corn-leaf beetle [*Myochrous denticolis* Say]: a new insect pest of growing corn, 3 pls., **6**.—**Wilcox, E. V.** Abstracts of recent papers, Experiment Station Record, xiii, 2, U. S. Dept. of Agric., Washington, '01.—Numerous short articles and notes in **7**, 30, by various authors.

ARACHNIDA.—**Banks, N.** Some spiders and other Arachnida from Porto Rico, * 1 pl., **50**, no. 1253, rec'd Oct. 5.—**Börner, C.** On the external morphology of *Koenenia mirabilis* Grassi, figs., **22**, Sept. 16.—**Cambridge, F. O. P.** Arachnida Araneidea, vol. ii, pp. 209-248*, **15**, Feb., Apr., May, June.

PROTOTRACHEATA.—**Evans, R.** On two new species of Onychophora from the Siamese Malay States, 6 pls.; *Eoperipatus Butleri* nov. sp., 1 pl., Quarterly Journal of Microscopical Science, London, Aug., '01; On the Malayan species of Onychophora: ii. The development of *Eoperipatus weldoni*, 5 pls., l. c., Sept., '01.—**Sänger, H.** *Peripatus capensis* Sr. and *P. Leuckartii* n. sp. [from the Travaux du deuxième congrès des naturalistes russes à Moscou, 20-30 Aug. 1869]; Bulletin, Société Philomathique de Paris (n. s.) iii, 1, '01.

MYRIOPODA.—**Chamberlin, R. V.** List of the myriapod family Lithobiidae of Salt Lake County, Utah, with descriptions of five new species*, **50**, no. 1232. Rec'd Sept. 28.—**Heymons, R.** The developmental history of *Scolopendra*, ii, 8 pls., Zoologica xiii, 4-5, Stuttgart, '01.—**Rossi, G.** A nest of *Julus*, **22**, Sept. 2.—**Verhoeff, K. W.** On the phylogeny of the Diplopods, **22**, Sept. 2.

ORTHOPTERA.—**de Bormans, A.** Some Dermaptera of the Civic Museum of Genoa, **80**.—**Fogg, S. C.** A Rock Rimmon catch containing additional species of Orthoptera noted in the vicinity of Manchester [New Hampshire], **130**.—**Morgan, H. A.** See Economic Entomology.—**Portchinsky, J.** Observations on some new and

little-known Orthoptera with biological notes [transl. from Russian], Entomologists' Record, London, Sept. 15, '01.—**Rehn, J. A. G.** Some necessary changes and corrections in names of Orthoptera, **4**; Notes and remarks on Mexican Orthoptera with descriptions of new species* [two papers], Transactions, American Entomological Society, xxvii, Philadelphia, Sept., '00, May, '01.—**Scudder, S. H.** *Miogryllus* and its species in the United States*, **5**.

NEUROPTERA.—**Burnham, E. J.** Additional notes on the [Odonata] Anisoptera in the vicinity of Manchester, N. H., **130**.

HEMIPTERA.—**Ball, E. D.** A review of the Tettigonidæ of North America north of Mexico*, Proceedings, Iowa Academy of Sciences, viii, Des Moines, '01, and Ohio State University Bulletin (5) 21, Columbus, O., July, '01.—**Breddin, G.** New neotropical bugs, **40**, July 1, 15, Sept. 1, 15, Oct. 1.—**Distant, W. L.** Revision of the Rhynchota belonging to the family Coreidæ in the Hope Collection at Oxford, 2 pls., **14**.—**Howard, L. O.** On the habits of *Entilia sinuata*, figs., **7**, 30.—**Hueber, T.** Synopsis of the German Capsidæ, vi, Jahreshefte, Verein für vaterländische Naturkunde in Württemberg, lvii, Stuttgart, '01.—**King, G. B.** *Kermes quercus* L., **5**.—**Lidgett, J.** A catalogue of Australian Coccidæ, The Wombat [place of publication?], iv, no. 3, pp. 37-64, May, '99.—**Montandon, A. L.** Notes on some Hemiptera, Heteroptera and descriptions of new species from the collections of the Civic Museum of Genoa, **80**.

COLEOPTERA.—**Barbey, A.** See Economic Entomology.—**Bernhauer, M.** The Staphylinidæ of the palæarctic fauna, **44**.—**Blackburn, T.** Revision of the genus *Paropsis*, pt. vi, Proceedings, Linnean Society of New South Wales, 1901, i, Sydney, Aug. 13, '01.—**Donisthorpe, H. St. J. K.** Cases of protective resemblance, mimicry, etc., in the British Coleoptera, **36**.—**Gestro, R.** Systematic catalogue of the Paussidæ, **80**.—**Gorham, H. S.** Species of the subfamily Languriidæ contained in the Civic Museum of Genoa*, **80**.—**Hopkins, A. D.** See Economic Entomology.—**Jacoby, M.** New species of phytophagous Coleoptera from Paraguay; Descriptions of two new species of *Hermesia* (Chrysomelidæ, fam. Eumolpidæ), **80**.—**Kadic, O.** Studies on the labium of the Coleoptera, 1 pl., Jenaische Zeitschrift für Naturwissenschaft, xxxvi, 1-2, Aug. 15, '01.—**Menegaux, A.** On the biology of the Elm *Galeruca (xanthomelæna)*, **12**, Sept. 9.—**Pic, M.** The diversity of classification of the Longicorns, Feuille des jeunes naturalistes Paris, Oct. 1, '01.—**Regimbart, M.** New Dytiscidæ and Gyrinidæ of the Civic Museum of Genoa, **80**; On some new Dytiscidæ from South America, **80**; **Schauf.** H. J. Kolbe's new classification of beetles, **84**, Oct. 3.—**Spaeth, F.** Two new Cassididæ from Paraguay collected by Sign. G. Boggiani, **80**.—**Wasmann, E.** Two new *Lio-metopum* guests from Colorado*, Wiener Entomologische Zeitung, xx, 7, Sept. 30, '01.

DIPTERA.—**Banks, N.** The eastern species of *Psychoda*,* **4**.—**Chagnon, G.** Preliminary studies on the Syrphidæ of the Province of Quebec, *Naturaliste Canadien, Quebec*, Sept., '01.—**Coquillett, D. W.** Types of Anthomyid genera, **6**.—**Doane, R. W.** Descriptions of new Tipulidæ,* **6**.—**Herrick, G. W.** Notes on the life history of *Anopheles punctipennis* and on the egg-laying of *Culex pipiens*, *Science*, New York, Aug. 30, '01.—**Noack, W.** Contributions to the developmental history of the Muscidæ, figs., 5 pls., *Zeitschrift für wissenschaftliche Zoologie*, lxx, 1, Leipsic, Sept. 10, '01.—**Robertson, C.** Some new Diptera,* **4**.—**Schmalz, J. B.** On the life-history of the Brazilian bot-fly, **84**, July 11.—**Speiser, P.** Studies on Hippoboscidæ, **80**.—**Williston, S. W.** Diptera, i, supplement, pp. 259-296,* **15**, April, May, June.

LEPIDOPTERA.—**Anon.** Caterpillars attended by ants, **4**.—**Butler, A. G.** A revision of the butterflies of the genus *Precis* and notes on seasonal phases of the species, **11**.—**Dyar, H. G.** Life histories of North American Geometridæ, xxvi, **5**.—**Fischer, E.** Further researches on the percentage of *Vanessa* aberrations, **40**, July 1, 15.—**Fletcher, J.** List of Lepidoptera taken in Baffin Land by Dr. Robert Bell in 1897, Annual Report, Geological Survey of Canada (n. s.), xi, report M, Ottawa, '01.—**Frings, C.** Are butterflies really captured in significant numbers by birds? **40**, Aug. 1.—**Godman, F. D.** Lepidoptera Rhopalocera, ii, pp. 597-692,* **15**, Feb., April, May, June (completing Hesperidæ and beginning Supplement to vols. i and ii).—**Hampson, G. F.** New species of Syntomidæ and Arctiadæ,* **11**.—**Moffat, J. A.** A surprise [*Telea polyphemus* double-brooded?], **4**.—**Nöldner, E.** Two new *Heliconius*, **24**.—**Ribbe, C.** Brief remarks on the capture of butterflies by birds, **84**, Sept. 19.—**Riffarth, H.** The genus *Heliconius* Latr. newly treated and description of new forms, **24**.—**Schaus, W.** A revision of the American Notodontidæ,* 2 pls., **36**.—**Sclater, P. L.** Lepidoptera of St. Lucia, West Indies, **14**.—**Smith, G.** Variation in the genus *Erebia*, i, *Entomologist*, London, Oct., '01.—**Smith, J. B.** Concerning protests and other things, **4**.—**Soule, C. B.** Mating of *Attacus gloveri*, **5**.—**Weeks, A. G., Jr.** New diurnal Lepidoptera from Bolivia, **4**.

HYMENOPTERA.—**Cockerell, T. D. A.** New bees of the subfamily Anthophorinæ from Southern California,* **4**; Bees from Southern California visiting flowers of *Eriogonum* and *Rhus*,* **4**; On some bees of the genus *Andrena* from New Jersey, **6**.—**Karavaev, V.** The internal metamorphosis and the anatomical peculiarities of the heart in the larvæ of ants [two brief notes in Russian] *Zapiski Kievskavo Obschestva Estestvoispytatelei*, xvi, 2, Kiev, 1900.—**King, G. B.** A check-list of the Massachusetts Formicidæ, with some notes on the species, **5**.—**Kohl, F. F.** On a case of "frontal" gynandro-morphism in *Ammodiplosis abbreviata* F., figs., **44**.

DEPARTMENT OF ECONOMIC ENTOMOLOGY

Edited by Prof. JOHN B. SMITH, Sc. D., New Brunswick, N. J.

Papers for this department are solicited. They should be sent to the editor, Prof. John B. Smith, Sc.D, New Brunswick, N. J.

DR. HENRY SKINNER,

Secretary American Entomological Society,

Dear Sir :

The State of Virginia has passed a law requiring all nursery stock coming into their State to be examined by a professional entomologist. Our State has a similar law, and has appointed Mr. — to do the work. He has visited our nursery and has given us a certificate, but the Virginia State Entomologist declines to accept it, as Mr. — is not known to him to belong to an entomological society and is not vouched for as being a skilled entomologist. The laws of Virginia will not allow us to ship any trees into their State without we have a certificate from their entomologist and pathologist tacked on each box, and Prof. W. B. Alwood will not issue that certificate without we furnish him one signed by a professional entomologist who has examined our nursery. Prof. Alwood states that any professional man known to the American Association of Economic Entomologists will be satisfactory to him.

Yours truly,

_____,
Pennsylvania.

The form of certificate of Pennsylvania reads as follows : " This is to certify that the stock in the nursery of — was duly examined in compliance with the provisions of the Act of the Legislature of Pennsylvania approved the 10th day of June, A. D. 1901, and was found to be apparently free from San José scale and other dangerously injurious insects, pest or pests. This certificate expires July 31st, 1902."

It will be observed that the date of examination is not given, although the certificate is dated in this instance August 21, 1901. The name of the examiner is not given, although the presumption is that the examination was made by the person or persons appointed by the State.

I wrote to Prof. Alwood on this subject, and take the liberty of quoting part of his reply : " * * * We not only have to bear the brunt of all this trying work in our own State, but we are held responsible by law for admitting nursery plants to the State. * * * I have worked for many years on the economic side of entomology, and presume it is fair to say that I know something of this phase of the question, and I have certainly had experience in administering the State laws. Notwithstand-

ing this long experience and knowledge that I have gained, various State authorities try to force upon me certificates of nursery inspection signed by political appointees or by men that are never heard of in the sense of technical workers. When I refuse to accept these, I am abused and reviled even to the point of very ungentlemanly expressions by some persons, but I have made up my mind that from this on no political officer or other untrained person shall be able to force a certificate on me. Unscientific as our economic work may often be, it is certainly worthy of some professional standing, and I shall see to it that it is so recognized in this State, and that other States dealing with us shall give us the word of a man equally well trained as we profess to be. In doing this I believe I am taking a proper stand, which should be the position of all trained workers."

I thoroughly coincide with Prof. Alwood, and all entomologists will undoubtedly agree that a proper professional standard should be maintained in economic work, or our efforts will only meet with ridicule. If such offices are pandered out as political rewards, we, as entomologists, must set our faces against such practices. —HERNY SKINNER.

DEAR DR. SKINNER :

Kindly permit me to say that I have never refused the certificate of any man because he did not belong to the American Association of Economic Entomologists. I have always insisted that persons *issuing* such certificates should *be known* to the members of this association as competent persons, *or that* the actual *work of inspection* should be done by a known worker trained in economic entomology. My position has been very much misrepresented by disgruntled persons. The whole gist of our requirements are contained in the following paragraph :

It will be the policy of this office to accept only certificates which show that the examination has been made by a person or persons of proper credentials as to their competency ; *i.e.*, known entomologists or persons vouched for by known entomologists.—Very sincerely, W. B. ALWOOD.

The above correspondence is useful and important, giving rise to some very interesting questions. The State Entomologist of Virginia declares that the laws of New York and Pennsylvania must accord, not in essentials, but in detail, with the law of Virginia as interpreted by him, and he prescribes the qualifications that an inspector in those States must have. Indeed, he goes further and fixes the evidence that is required as an entomologist from some one known to him. The legality of these regulations is very decidedly questionable ; but aside from this, there is another result. I have had the advantage of a personal meeting with the Pennsylvania Inspector, and while he is in no sense of the word an entomologist, I am convinced that he is perfectly able to find and recognize San José scale if it exists. As to his honesty in the performance of his duties, I must take it on trust, as I do that of all other inspectors. If I understood him correctly, Prof. Forbes holds that he cannot, in Illinois, refuse

or decline to recognize any certificate properly issued in the State where the examination is made. I am in much the same fix in New Jersey, and do not even feel justified in refusing certificates dated in June, before the first brood of scale is well under way, and when its first discovery in a block of peaches is almost a physical impossibility.

Another curiosity results from this: Prof. Alwood accepts certificates signed by Prof. Forbes and by myself. In Illinois and in New Jersey nurserymen are allowed to use the certificate given them upon stock which they themselves receive under certificate. In New Jersey the nurseryman makes a declaration to that effect on his tags. Now, a Pennsylvania grower may supply stock to an Illinois or New Jersey nurseryman, and the latter may ship it safely into Virginia! The whole thing is a mess as tangled as the marriage and divorce laws, and in ten years hence there will be no difference, so far as this scale is concerned, between States with and States without laws; *provided*, that the insect has already secured a foothold at this time.—JOHN B. SMITH.

Doings of Societies.

A meeting of the Entomological Section of the Academy of Natural Sciences of Philadelphia was held September 26th, Mr. Chas. W. Johnson presiding. Fifteen members were present and five visitors. Mr. Snyder exhibited specimens from Nantucket representing three hours' work. Mr. Seiss spoke of some odds and ends from Florida collected by Mr. Laurent. Among them were some scorpions, the females of which made nests of sand. The species was *Garyphus floridensis*. Mr. Rhen spoke of a trip he had made, with two other gentlemen, across the New Jersey pine barrens during June. He mentioned the capture of *Neonympha areolatus*. Dr. Skinner gave an account of his trip to New Mexico. Mr. C. W. Johnson mentioned that Dr. Skinner had collected two specimens of *Cuterebra* at Beulah, New Mexico, one of which was *C. lepi-vora* and the other not yet determined. Mr. Viereck exhibited a living specimen of *Tenodera sinensis* ♀, and stated that the males predominate, and are preyed upon by sparrows, which do not attack the pugnacious female mantids. They eat caterpillars and grasshoppers. Mr. Rehn said they had no difficulty in killing and eating *Melanoplus differentialis*. Mr. Horning stated that he had found the larva of *Fenescia tarquinius*.

near Mount Moriah Cemetery. They were feeding on the beech tree *Aphis*. The caterpillar is soft and wooly and soapy to the touch. The *Aphis* drops a fluid which makes collecting the *tarquinius* very unpleasant. It took the larva four days to turn into a chrysalis. The changes in color and shape were mentioned.

Mr. Welles said he had also seen this larva. He also mentioned that the catalpa trees which had been defoliated by *Ceatomia catalpæ* were dead. Mr. Johnson exhibited specimens of *Trichopoda formosa* Wied, ♀, and *Trichopoda lanipes* Fab. ♂, which had been taken in coitu. They had been captured by Mr. Laurent at Miami, Florida. Although described as distinct, there is no doubt about their being the same species. Mr. Rehn mentioned having taken *Schistocerca rubiginosa* and *alutacea* in coitu, and thinks they are color varieties of one species.

DR. HENRY SKINNER, *Recorder*.

The regular stated meeting of the Feldman Collecting Social was held October 16th, at the residence of the Secretary, Wm. R. Reinick, 2245 N. Lambert Street, the members being his guests. Fourteen members present. President Charles W. Johnson in the chair.

The minutes of the last meeting were read and approved. Mr. Seiss mentioned the fact that he had had a number of specimens under the name of *Schistocerca rubiginosa*, but in looking at them recently, he came to the conclusion that they were two species under one name, and, upon looking the matter up, he found out that he had seven specimens which agreed with the description of *S. damnifica*—a species which is new to New Jersey. He also spoke upon the differences between the two species.

Professor Smith stated that both species were quite common to New Jersey.

Mr. Wenzel stated that at the last meeting Mr. Johnson said that recently diptera had been found in the ant's nest in Texas, and said he thought we ought to find specimens up in this district. The speaker showed two specimens of a *Phorid* taken from an ant's nest in a log at Frankford, September

8th, and, from his observations, thought that the flies must be parasitic. As soon as the nest was disturbed the flies started to run into the galleries, and the ants kept snapping at them. The flies seemed to be very common; as they crawled into the ants' galleries very rapidly; only two were taken.

Dr. Skinner showed the elytra and abdomen of a female of *Strategus antaeus* which had been given to him by Mr. A. E. Brown, of the Philadelphia Zoological Society, who stated that the parts shown had been passed by a water moccasin. Mr. Seiss said that he thought this could be explained by the fact that bullfrogs eat a great many insects, and a snake must have swallowed a frog which had eaten this specimen. Prof. Smith stated that the specimen was a female.

Mr. Wenzel reported from Chew's Landing, N. J., *Anthonomus disjunctus*, taken, September 6th, on a fall flower.

Mr. Daecke spoke about a lake which he had run across near Manumuskin, N. J., and stated that it seemed like a portion of Florida transferred to Jersey.

Prof. Smith spoke of the egg-laying habits of *Scudderia texensis* Sauss., the species which is destructive on cranberry bogs. It is found that eggs are deposited in the leaves of species of *Panicum*, preferably *viscidum* and, as a second choice, *dichotomum*. The ovaries contain from 12 to 15 tubes on each side, and, when first developing, each tube contains 5 almost equally developed egg-cells. The possibilities would therefore seem to be 150 eggs to an individual. As a matter of fact, only the lower egg in each tube develops, and 30 would seem to be the limit of ova deposited by a single individual. Egg-laying begins about the middle of September, and continues for nearly a month, the ova developing gradually in the individual. It is probable that six eggs placed at one time by one specimen comes nearer the limit.

In the general discussion on mosquitoes Prof. Smith states positively that more than one-third of all the specimens in South Jersey are *sollicitans*, the salt marsh species; that they may be blown or fly twenty miles or more inland, and that he has never found their larvæ at such points, though the adult females occurred in myriads; that even along shore where salt and fresh water merged *sollicitans* larvæ were never found in

fresh water, but were always found in great numbers where it became salty. The wates might be as salty as the sea itself, or more so; in fact, positive analysis of water in which larvæ were swarming showed from 20 to 25 per cent. more salt than normal sea water. Analyses were made at the New Jersey station and by Dr. E. G. Love, and they agreed practically in this point.

Larvæ of *Anopheles punctipennis* were also taken and bred in salt water from the Elizabethport meadows, though not in numbers. After a careful canvass of the State, he had found no relation whatever between the abundance of *Anopheles* and the prevalence of *malaria*. He did not wish to be understood as denying the connection between the two nor the necessity of *Anopheles* as an intermediate host; simply that the occurrence of *Anopheles* in large numbers does not necessarily mean that the district is a malarious one. There is a third factor involved which has not been recognized, and which must be determined before we can say that the subject is fully understood.

After the reading of the rough minutes, the meeting adjourned to the annex at 10.30 P.M.

W. H. REINICK, *Secretary*.

AN AUTHOR presents a paper before some society. He asks for a number of separates, usually one or two hundred copies. These are printed and sent him either gratuitously, or on payment of the additional expense incurred by the printer in changing the matter. Now on these, reference to the date and place of publication, and even the title of the publication itself may, one of the three, or all of them be omitted. Now what is the best course to pursue? Pitch the separates into the grate, or send them out and get scored for the lack of any one of these items more or less essential to the bibliographer?—F. M. WEBSTER.

SPHÆRIDIDIUM SCARABÆOIDES, Linn.—In Eastern Pennsylvania, on May 28th, while traversing a cleared area on the Lehigh Mountain near Bethlehem, which for many years has been a favorite browsing place for cows, I was reminded by favorable conditions present to look for *Sphærididium scarabæoides*. After a few examinations I was agreeably surprised to find a number of these active little beetles. Their presence here so soon after their discovery in New York State as recorded by R. F. Pearsall and C. O. Houghton, seems to indicate that they are rapidly making their way southward.—G. W. CAFFREY, Bethlehem, Pa.



UTAH BUTTERFLIES (BROWNING).

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Collecting in the Vicinity of Salt Lake City.

With a List of Rhopalocera taken.

By G. WESLEY BROWNING.

Owing to the diversified character of its environs, Salt Lake City is admirably situated as the center of an interesting entomological field. On the west we have the level sun-burned alkaline flats lying between the city and the south end of Great Salt Lake, where many interesting Coleoptera, Orthoptera and Odonata are to be found. The outskirts of the town are fringed by marshes, verdant meadows and agricultural lands, and there is an abundance of orchard and shade trees which give to the city its greatest feature of beauty. On the other hand, being built at the very base of an abruptly rising range of mountains, we have within the eastern and northern limits of the city those level sage-brush covered "benches" which, in times long past, were the beaches of a vast body of fresh water—the Lake Bonneville of geologists. Next we have the mountains themselves, with one of the most interesting canons entering the city like a wedge from the northeast. In this one canon I have found all the species in the subjoined list, with the excep-

tion of six. Here we may, perhaps, trace the existence of an entomological fauna exceptionally rich in species, considering the area covered, to a geological foundation, as this canon is unique in its construction among those of the western slope of the Wasatches. This gives us not only variety of contour, but also of soil composition and a corresponding flora with its attendant insect protégés.

Salt Lake City, situated at an elevation of 4,225 feet, represents practically the bottom point and the center of a radius of about thirty-five miles, within which all the species herein listed have been taken. The height at which the growth of coniferous trees generally commences in northern Utah is in the neighborhood of 6,000 feet, and an imaginary line drawn at this altitude marks a decided change in both the flora and the fauna above from that below, and while it is a notable fact that similar situations in different localities do not always yield the same species—each square mile being likely to have its own peculiarities—many of the species seem to be restricted within pretty well defined zones of altitudes, which I have endeavored to indicate to the best of my knowledge in the list.

It has been mentioned by visiting entomologists that they have found collecting at light in Salt Lake City unprofitable, and my own experience has often been decidedly the same. During certain seasons, when good night collecting might be fully expected, I have visited the electric lights after night without finding anything of interest. Again, however, I have taken a great variety of things at frequent intervals throughout the summer and early autumn. In fact, I have found three different butterflies (*Pyrameis cardui*, *Pholisora catullus* and *Pieris protodice*) at light. Curiously, these three specimens were found on different evenings under the same light, and no other diurnals ever noted under any but that one individual lamp. I believe it has often been noted by nocturnal collectors that certain lamps seem to have special power of attraction for insects, and in endeavoring to account for the fact, I have observed that those lamps which are near the outer limits of brightly illuminated districts, and in more or less sheltered situations seem to be the particular *ignes fatui* of insect kind.

The following are the butterflies I have collected :

- Eudamus tityrus*.—Common at lower altitudes.
pylades.—Common in canons up to 6,000 feet.
Nisoniades juvenalis.—Common in lower canons.
brizo.—Apparently rare, only one specimen taken.
propertius.—Rather common in May in canons.
icelus.—Neither rare nor common. Canons in early spring.
Pholisora catullus.—Common everywhere up to about 6,000 feet.
pirus.—Common in July about flowers of *Apocynum androsaemifolium*, from 5,000 to 7,000 feet.
Pyrgus tessellata.—Extremely common in the valley and lower canons, especially towards the end of summer.
cæspitalis.—Not common. Noted from about 5,000 feet to the snow banks of the higher mountains, about moist spots.
Pamphila taxiles.—Lower canons and hillsides. Males common, females not so.
comma var. *juba*.—Rather com. everywhere up to middle altitude.
napa.—Common everywhere on composite flowers of 7,000 feet or more.
scudderi.—Only two specimens taken ; these both in late summer about sunflowers on the lower hillsides.
Lycæna fuliginosa.—Quite common. Have found it from about 7,000 to nearly 10,000 feet on mountain sides among the numerous flowers of such situations.
heteronea.—Neither common nor scarce. Usually along mountain streams from 5,000 to about 7,000 feet.
lycea.—Abundant, mostly in the lower canons along streams.
lygdamas.—Common in May along with the last.
amyntula.—Common, associated with the two preceding.
pseudargiolus.—Rather scarce, same habitat as last.
melissa.—Common in both valley and canon, but unlike the foregoing, usually frequents hillsides and other situations not adjoining streams.
glaucôn.—Not common. Same habitat as last, except that it seems to be confined to the mountains.
acmon.—One specimen taken in Salt Lake Valley.
annetta.—One specimen taken at 7,000 feet.
exilis.—Taken only on one occasion, October 10, 1897, at which time it was very common about *Sarcobatus vermiculatus* and associated plants on the alkaline flats just west of Salt Lake City.
Thecla chrysalus and its var. *citima*.—Common about scrub oaks on the lower parts of the mountains and up to 6,000 feet.
melinus.—Valleys and canons ; common.
itys.—Usually quite common July and August on flowers of *Rudbeckia occidentalis*, from 6,000 to 7,000 feet.

- putnami*.—In valley. Not usually common.
- chalcis*.—On sunny mountain slopes above 6,000 feet.
- scæpium* ?—A few specimens doubtfully referred to this species, which were taken at slightly lower altitude than the last.
- behri*.—Common about flowers of the higher slope, of which *Solidago pumilla* seems to be preferred to all others.
- augustus*.—Lower canons ; rare.
- irus* ?—Three specimens taken in April on lower hillsides.
- Chrysophanus virginienis*.—From Salt Lake City (4,225 feet) up to nearly 8,000 feet ; periodically occurring in numbers about wild parsnip at Salt Lake City, but usually scarce.
- helioides*.—Very common everywhere below 7,000 feet.
- zeroe*.—Rather common from 6,000 to 7,000 feet.
- rubidus*.—Quite common in some localities at about 6,000 feet. Was plentiful in July, 1900, among wild mustard in Parley's Canon.
- Lemonias mormo*.—Not common ; found about asters and *Apocynum sæmifolium* on high and dry mountain slopes.
- Satyris paulus*.—Common about dry foot-hills.
- charon*.—Sometimes common at about 6,000 feet.
- Chionobas chryxus*.—Taken on rocky hillside between 7,000 and 8,000 ft.
- Cænonympha ampelos* (elko Edw.).—Spring brood occurs in both valley and canons below 6,000 feet. September brood is confined to the valley. Usually common.
- ochracea* (*pamphiloides* Reak.).—Lower canons in June ; higher altitudes later. Have taken it above 7,000 feet, July 24th.
- Grapta zephyrus*.—In valley and as high as 7,000 feet in the mountains.
- satyrus*.—In canons, up to about 6,000 feet. Neither rare nor com.
- silenus*.—Scarce. Upper canons, at about 7,000 in August.
- Vanessa antiopa*.—Common everywhere.
- milbertii*.—Rather common in valley and canon.
- californica*.—Canons at about 6,000 feet. Not common.
- Pyrameis cardui*.—Periodically common in canon and valley. Have taken it as high as 7,000 feet.
- carye*.—Always common in valley and lower canons.
- atalanta*.—Valleys and canons up to at least 6,500 feet. Not com.
- Argynnis leto*.—Canons up to 8,000 feet. Males common ; females not so.
- platina*.—Com., especially the males. About same range as last.
- snyderi*.—Usually common. June brood almost entirely confined to the mountains and consists of nearly all males, so far as observed. July and August at higher altitudes with greater proportion of females. For the past two years have noted a September brood occurring in Salt Lake Valley and consisting almost wholly of females. My collecting record shows 30 ♂ and 1 ♀ collected in June. 10 ♀ and no ♂ in September.
- nevadensis*.—Usually common in lower canons in June ; later at higher elevations. Sexes in about equal numbers.

- chitone*.—Our commonest *Argynnis* in the immediate neighborhood of Salt Lake City. Males seem to be slightly in excess.
- egleis*.—Not common. 6,000 to 7,000 feet.
- cornelia*.—In the upper canons.
- Melitæa acastus*.—Males are usually quite common about the lower hills and canons. Females rather scarce.
- maria*.—Periodically abundant in certain localities, but usually scarce. About 6,000 feet altitude.
- Phyciodes tharos*.—Common, especially in the canons.
- camilla*.—Very common everywhere.
- mylitta*.—Common in the canons where it is usually associated with *Melitæa acastus*, from which it is indistinguishable when on the wing.
- Limenitis disippus*.—Meadow lands of Salt Lake Valley. Usually not common.
- wiedemeyerii*.—Common about Salt Lake City, and from thence to altitude of about 8,000 feet. Have taken some specimens as high as 9,000 feet.
- Heterochroa californica*.—Only two specimens seen, one of which was captured in City Creek Canon near Salt Lake City.
- Danaüs archippus*.—Usually common in both valley and canon.
- Nathalis jole*.—Two specimens taken on foot-hills at Salt Lake City.
- Anthocharis sara* var.—Generally common in lower canons in May and later at higher altitudes. See remarks below.
- ausonides*.—Canons and foot-hills. Common.
- Pieris sisymbri*.—Foot-hills in May and rarely at higher altitudes later.
- occidentalis*.—Common everywhere up to nearly 10,000 feet.
- protodice*.—Not common. Canons and valleys.
- rapæ*.—Abundant through rapid and steady increase during late years in the agricultural districts where it does great damage to the cabbage crop. Seldom noted in the mountains.
- napa* var. *oleracea*.—See remarks below.
- Colias eurytheme*.—Very common everywhere, more especially about alfalfa fields together with var. *eriphile*, which occurs in even greater numbers.
- occidentalis* ?—Lower canons. Not common. No females taken.
- alexandra*.—Only two specimens taken; these in canon near Salt Lake City.
- Papilio rutulus*.—Common everywhere.
- daunus*.—Usually common in canons in June up to at least 7,000 ft.
- eurymedon*.—Common in canons from 4,500 to 6,000 feet.
- zolicaon*.—Usually scarce. Salt Lake Valley and up to 9,500 feet
- bairdii*.—Usually rare. Certain localities in Salt Lake Valley and rarely in canons.
- indra*.—Quite rare. Taken in canons at 6,000 feet.
- Parnassius clodius*.—Fairly common at points near Salt Lake City hav-

ing an elevation of about 6,000 feet. Wherever it occurs in numbers, *P. smintheus* seems to be scarce.
smintheus.—Much commoner than *clodius* at points farther into the range, at elevation of 6,000 to 7,000 feet.

In addition to the above, one specimen of *Vanessa j-album* was taken in the spring of 1898, but as this specimen was found resting on some wood in a lumber yard, the likelihood is that it had been transported from Oregon along with the timbers, among which it had probably been hibernating.

Among my specimens are also one or two Argynnidæ, which may be distinct from the ones here enumerated, but which will, in all probability, bear the label "*Argynnis* sp." for some time to come.

It is a matter of regret to me that so little opportunity has been found to collect at points back of the western slope of the mountains, so I have prevailed upon Prof. A. J. Snyder to kindly supplement my species with additional ones, most of which were taken about Park City and Brighton. Following is the record of his captures :

Pamphila mardon.—A few specimens taken near Park City in low swampy ground, which seem to belong to this species.

sylvanoides.—The most common species in same locality as the above. Sometimes as many as a dozen at a time seen resting on a single thistle blossom.

manitoba.—At Park City, but not common.

agricola.—Rather common at Salt Lake. Also taken occasionally at Ogden and Park City. Along roadsides, resting on foliage and flowers.

Lycæna pheres.—Com. at Salt Lake in 1893. Taken along the foot-hills.

sæpiolus.—Abundant in low meadow below Park City.

sagittigera.—Rare. Taken at Park City and Silver Lake. Only three specimens in all.

annetta.—Common at Deer Meadow near Park City, but not seen elsewhere.

Also specimens identified as *Lycæna dædalus* and *L. icaroides*, but identity doubtful.

Thecla iroides.—Several specimens taken above Fort Douglas, Salt Lake.

californica.—Common at Park City. On choke-cherry leaves at elevation between 7,000 and 8,000 feet.

sheridani.—Common locally at Silver Lake near tops of mountains.

affinis and *dumetorum*.—Same localities as *sheridani*. *Dumetorum* always rare, but *affinis* common where found.

Chrysophanus snowi.—Two specimens taken at Park City.

editha.—Common from Park City to Deer Meadow along the edge of the mountains.

Satyrus ariane.—Rather common near Murray, Salt Lake Valley.

Argynnis eurynome.—Abundant in grassy meadow below Park City.

Have taken in the neighborhood of 1,200 specimens while studying variations.

artonis.—Found with the above in ratio of one to twenty-five.

eurynome var. *arge*.—Taken with *eurynome*.

myrina.—Abundant at same time and place as *eurynome*.

epithore.—Rare. Usually found among canna-like plants in marshy ground.

meadii.—Most abundant above Fort Douglas, but taken everywhere, even on summits of some of the highest mountains.

montivaga.—Several specimens taken at Park City.

helena.—Common in the canon below Brighton (Skinner).

Also specimens identified as *A. liliana*, *A. halcyone*, *A. rupestris*, *A. inornata*, *A. oweni* and *A. behrensii*, but of which identification is not positive.

Melitæa gabbi.—Several specimens at Park City.

palla.—Several specimens at Park City.

Phyciodes pratensis.—At Salt Lake in 1893. Not common.

Colias emilia.—One specimen at Park City.

edwardsii.—Several specimens at Park City in 1893.

There is an immensely diversified area included within the thirty-five mile radius mentioned at the beginning, and I am well satisfied that the specimens recorded do not approach the total that more extended research may bring to light. However, 115 species for two collectors in one locality is not a poor showing, and will demonstrate pretty well the character of northern Utah as a field for the net.

As to *Pieris oleracea*: In past years immaculate white Pierids were to be taken everywhere in this vicinity, and without critical examination of specimens taken, I took it for granted that they were all *oleracea*. But upon the advent of *P. rapæ* these spotless individuals began to disappear from the valley, and are now entirely—so far as I can ascertain—replaced by *rapæ*, while those in the mountains still hold their own, being found, as a rule, in large numbers. Upon later examination of my specimens, however, I note that there are some slight differences between the mountain and the valley specimens, those of the valley having the apex of the superiors quite angular, approaching *P. rapæ* in this respect, while in

the mountain representatives the apex is pretty well rounded in both sexes. Also in the valley specimens, the veins are grey and distinct and a very decided dash of grey at the bases of the wings, while in those of the heights, the wings are uniformly concolorous, with very little grey at bases. Now whether my specimens are *P. oleracea* or *P. pallida*, or both, or neither, is for someone else to decide, but what engages my speculation is; Why did the valley butterflies disappear? Is it possible that they could have been assimilated by the ever-increasing numbers of a *Pieris* supposed to have no indigenous representative on this continent, or has it been proved by experiment that *P. rapæ* will not cross with any variety of *P. napa*? As observations—as to the elimination of *P. oleracea* from the fauna of other localities—have been reported, the matter seems to me to present an interesting theme for further investigation.

Our local form of *Anthocharis sara* is a variety that seems to be intermediate between *stella* and *julia*. The extent to which it diverges from these may be noted in our figures (Pl. XIII, No. 3 ♂, No. 4 ♀) by comparing these with the figures of the types in Dr. Holland's book.

I have also figured (No. 5) what I take to be a form of *Anthocharis ausonides*, but whether a fixed variety, or merely a heavily marked and under-sized aberration, I am unable to say.*

Figures 1 and 2 represent an interesting aberration of an *Argynnis*, probably *platina*, of which only one specimen was found, whereas I have taken four specimens of the *Anthocharis* shown in Fig. 5.

In conclusion, I wish to acknowledge my indebtedness to Dr. Henry Skinner and to Prof. A. J. Snyder for the identification of many species and the kindly interest shown in matters relative to which they have been addressed.

Eggs of *Thyridopteryx ephemeraeformis*.

By A. GIRAULT.

During the winter, besides collecting pupæ and rearing, I have counted the eggs from twenty cocoons of the bag-worm

* I take this to be *ausonides* var. *lotta* Beutenmuller (Skinner).

Thyridopteryx ephmeræformis. The count exceeded the expectations of myself, for I have seen stated by entomologists that on an average the eggs were between four and five hundred ; but if twenty cocoons are enough to obtain an average from, the number will be between nine and ten hundred. Only two counts were below five hundred, nine being in the thousands, and the rest in the range of seven to nine hundred. The following is an extract from my note book :

No.	Date—1901	No. Counted	Total	Average Per Cocoon
1	January 5	1031	1031	1031
2	" 18	475	1506	753
3	" 21	1115	2621	874
4	" 23	670	3291	823
5	March 8	1292	4583	917
6	" 9	1302	5885	981
7	" 9	1649	7534	1076
8	" 10	625	8159	1020
9	" 10	830	8989	999
10	" 10	840	9829	983
11	" 10	748	10,577	962
12	" 15	900	11,477	956
13	" 16	1090	12,567	967
14	" 17	1419	13,986	999
15	" 18	465	14,451	963
16	" 19	701	15,152	947
17	" 20	1513	16,665	980
18	" 21	1030	17,695	983
19	" 24	566	18,261	961
20	" 24	747	18,908	941
20		18,908	18,908	941 Final average

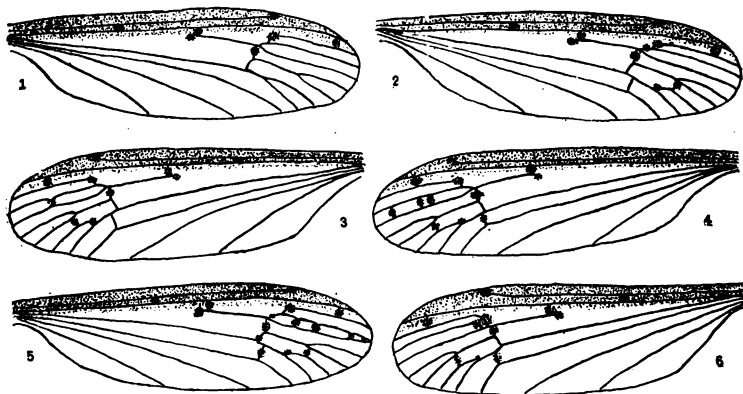
Variation in the Venation of *Amalopsis inconstans* Osten Sacken.

BY C. W. JOHNSON.

The variation in the venation of this species is very remarkable. Variations here exist which, if constant, would constitute excellent generic characters ; but there are apparently all gradations between the two extremes. From the typical form (fig. 2) there is a tendency on the one hand for the number of cross-veins to diminish, and on the other hand to greatly

increase in the second submarginal cell ; but, when the supernumerary cross-vein forming the discal cell is wanting, no adventitious cross-veins are present in the second submarginal cell.

A specimen (fig. 1) collected at Natrona, Pa., May 30, has both discal cells open, although a slight stub on the left wing indicates the position of the cross-vein. A specimen from Edge Hill, Pa. (May 26), and one from Riverton, N. J. (Sept. 8), has only the discal cell of the left wing open. Among the specimens in my collections are seven which have cross-veins in the second submarginal cells, showing the following varia-



Venation of *AMALOPIS INCONSTANS* (Johnson).

tions : One specimen (fig. 3) from Philadelphia (June 8) has but one cross-vein on the left wing ; while one from Riverton (May 14) has one on each wing ; one example from Philadelphia (June 8) has two on the right wing and one on the left, and another has two on each wing. A specimen from Riverton (Sept. 8) has three on each wing, but in different positions ; (fig. 4 shows the left wing, on the right the veins are equidistant) ; while one from Shiloh, N. J., (Sept. 1) has three on the left and four on the right wing. But by far the most singular variation is that shown by a specimen recently (Sept. 25) collected at Riverton. In this example (fig. 5) the second submarginal cells are closed, the left wing having three cross-veins and the right wing four.

One specimen (fig. 6), taken at Riverton (Sept. 8) shows an unusual variation, which Baron Osten Sacken refers to as follows: "In the majority of specimens the first submarginal cell is shorter than the second; in other words, it is the second longitudinal vein which is forked. Sometimes (in two specimens among eighteen) the reverse is the case; it is the third vein which is forked, and hence the first submarginal cell is longer than the second." Fig. 6 shows the left wing; on the right wing the first and second submarginal cells are of equal length, the veins forming those cells all diverging from one point. Osten Sacken also states that occasionally adventitious cross-veins occur in the second posterior cell. I have not observed this variation. Of the twenty-two specimens before me, only ten have normal venation.

A New *Cicindela*, with Notes on Allied Species.

BY H. C. FALL.

Among a lot of good things lately received from my friend, Dr. Edwin C. Van Dyke, were eight examples of a *Cicindela* taken by him the past summer in Humboldt County, California, and concerning which he expressed the belief that I would find it, upon examination, to be either a new variety or a new species. It proves indeed to be a good species, somewhat nearly allied to *12-guttata* and *oregona*, and as specimens are being distributed by Dr. Van Dyke, it is desirable that it should have a name.

C. eureka sp. nov.

Size of *oregona*; fuscous, the elytra feebly, the head and prothorax more evidently bronzed, and in part with green and coppery reflections; beneath blue green. Elytral markings of the *oregona* type, the humeral lunule interrupted, the middle band not extending along the margin, narrow, obliquely bent and of nearly uniform width throughout, being but slightly dilated at its inner extremity. Labrum pale, middle tooth moderately prominent, lateral ones indistinct or wanting. Front not pilose, vertex with a little group of three to five setae, and two (rarely three) others near the inner angle of the eye; the emargination of the eye with a single setigerous puncture. Thorax with sides nearly parallel in both sexes. Elytra relatively longer and less dilated than in *oregona*, especially in the female. In the male, the labial palpi are pale at base, and

the last ventral segment is asymmetrically emarginate ; the female with the sides of the abdomen conspicuously pubescent anteriorly, the last three segments glabrous.

In the attempt to determine the status of the species above described, some facts were noted which appear to have a bearing on the relationship of certain allied forms, and which it would seem proper to record at this time. There has been manifest for some time a growing dissatisfaction with the Schauppian treatment of the family, upon which our present lists are based, and there is a general and, I think, well founded belief that a considerable number of the forms there recorded as varieties are really distinct species. Probably no experienced coleopterist now believes *patruela* to be a variety of *sexguttata*, or that *12-guttata* is a variety of *repanda*. Some years ago I gave reasons why *venusta* should be restored to specific standing, and since then *willistoni*, *tenuicincta*, *saulcyi*, *imperfecta* and several others have been claimed to be good species by one writer or another.

Granting that *repanda* is quite distinct from its so-called varieties, *12-guttata*, *oregona* and *guttifera*, what, then, is the relation of these varieties to one another? They are certainly strikingly similar in facies, and are, I think, generally held to constitute but a single species. This, until lately, was my own belief ; but a recent study of many examples has convinced me that we must go a step further and regard *12-guttata* and *oregona* as distinct though closely-allied species, and that *guttifera* is practically identical with *oregona*, and not worthy of even varietal standing.

If a series of *12-guttata* be carefully compared with one of *oregona*, it will be observed that in the latter the elytra are relatively slightly shorter and more dilated. In *12-guttata* the thorax is distinctly narrowed behind in both sexes ; in *oregona* the sides are a little less convergent behind in the male and distinctly less so in the female. In *12-guttata* the middle band of the elytra is frequently dilated on the margin ; in *oregona* never so. In *12-guttata* the front is pilose, and there are three or four setigerous punctures within the emargination of the eye ; in *oregona* the front is glabrous, there being only a group of eight to ten setae each side near the inner angle of the eye,

and there is but one setigerous puncture within the emargination. In *12-guttata* the abdomen is pubescent at sides (anteriorly) in the female, though much less densely so than in many species; while in *oregona* the sides of the abdomen in the female are virtually glabrous. In the descriptions of both *oregona* and *guttifera*, the front is said to be sparsely pilose; the group of setae near the inner angle of the eye does not, however, warrant such description, and the facts will be found to be as above stated. *Guttifera* was described from New Mexico and was said to agree with *oregona* perfectly in form and markings, differing only in having the tips of the elytra less serrate, the sutural spine not prominent and the pleuræ cupreous instead of blue. This last character is of itself of no moment, while the others are quite inappreciable in a series. I would, therefore, consider *guttifera* simply a synonym of *oregona*.

There occurs in Arizona a beautiful variety of *oregona*, with green thorax and deep blue elytra, that passes as *guttifera*, and had this name been originally applied to it, it might properly be retained. This form was, however, unknown to Le Conte at the time of writing, and as it shades into typical *oregona* in Southeastern California, it should not now, I think, be given a distinctive name.

Oregona inhabits the entire Pacific Coast region, extending thence to the Rocky Mountains of New Mexico and Colorado. *12-guttata* occurs throughout the northern part of the United States and Canada east of the Mississippi River. Unfortunately, in the material examined, neither the northern parts of the Rocky Mountains nor the plains to the east are represented, and I am therefore unable to define the geographical limits of either species. I have a suspicion, however, that if specimens are found on the plains adjacent to the mountains, they will prove to be *oregona* rather than *12-guttata*.

In the high Sierras of Middle California occurs another species of the *oregona* group, the *C. depressula* of Casey. This is easily distinguished from all allies by its bright green color and completely non-serrate elytral apices. It is more elongate than *oregona* and with reduced markings, the humeral dot

being entirely absent in all specimens that I have seen. *Depressula* is compared by its author with *senilis*, with which, in my opinion, it has little affinity. So far as I know, *senilis* and allies are partial, if not peculiar, to salt or alkaline flats; *depressula* has been taken by Dr. Fenyés on Mount Tallac, at an altitude of 9,000 feet.

Attention has already been called* to the peculiar asymmetrical emargination of the last ventral segment in *hirticollis*, *repanda*, *12-guttata*, *oregona* and *limbata*. To this list must now be added *depressula* and *eureka*. Inasmuch as all these species (with the possible exception of *limbata*, in which the character is less marked) are recognized as mutually more or less closely allied, this unusual structure appears to have a special significance.

The fact seems not to have been recorded, or if so, it has escaped me, that in *scutellaris* and varieties the front is quite conspicuously hairy in the male and scarcely at all so in the female.

The Greenhouse Coccidae, I.

By GEORGE B. KING, Lawrence, Mass.

(Continued from page 233.)

HEMICOCCINÆ.

10. ***Orthezia insignis*** Dougl. 1887.

Found in a greenhouse in New York (R. H. Pettit), on greenhouse plants at Amherst and Cambridge, Mass. (Lounsbury), under glass at Trinidad, and found on exotic plants in the hothouse at Kew, England. It seems to be a general feeder on greenhouse plants, and is found living out of doors in Europe and America.

ASTEROLECANIINÆ.

11. ***Asterolecanium aureum*** Boisd.

Is found on leaves of *Hippeastrum*, cultivated under glass at Trinidad, and a greenhouse species of Europe. *Signoret*.

LECANIINÆ.

12. ***Pulvinaria cistri*** Bauché.

This is recorded from a greenhouse, and its native home is uncertain.

* ENT. NEWS, 1895, p. 179.

3. ***Pulvinaria persica*** Newst., 1892.

This was described from a peach tree under glass at Knutsford, Cheshire, England (Newstead).

14. ***Pulvinaria floccifera*** Westw.

In 1895, Prof. Cockerell described a species of *Pulvinaria* found on orchid (*Brassia nerucosa*) in a greenhouse at Ottawa, Canada, found by Dr. Fletcher, as *P. brassiæ*. Later, in 1899, Prof. Lull described *P. phaiæ*, found by Mr. Cooley in the College greenhouse at Amherst, Mass.; also on orchid (*Phaius maculatus*.) Prof. Cockerell now believes these to be identical with *P. floccifera*, as interpreted by Mr. E. E. Green in Entom. Mo. May, 1897, p. 73. *P. floccifera* is a very common species in greenhouses in England, on Camella and orchids. It is also found on several plants in Ceylon (Green).

15. ***Vinsonia stellifera*** Westw. 1888.

This is a common greenhouse pest in Europe (Signoret.) It is also said to be very destructive to potted plants in Trinidad (Hart).

16. ***Ceroplastes floridensis*** Comst., 1881.

This has been found on *Cinnaman casceia* in a greenhouse in Florida.

17. ***Lecanium hemisphaericum*** Targ., 1869.

This is one of the commonest of scale insects found in greenhouses and potted plants in dwelling houses, especially on ferns; in the department greenhouses at Washington, D. C., it is found on orange, *Drisipyrus*, *Chrysophyllus*, sago palm and *Croton variegatus* (Comstock), on *Neprolepsis exaltatus* and *Cycas* in College greenhouse at Colorado (Gillette and Baker), on house fern and potted plants in New Mexico (Cockerell), on *Cycas revoluta* at Ames, Iowa (W. Newell), on two species of ferns at Warehouse Point, Conn. (Dimmock), on sword fern *Pteris* sp. at Lawrence, Kansas (S. J. Hunter), ferns, palms, orange and *Oleander* in Georgia (W. M. Scott), on *Areca catecho* grown in pots at Jamaica (Cockerell), on *Cycas revoluta* in Springfield Nat. Hist. Museum (Dimmock), on ferns, *Cycas revoluta*, orange *Oleander*, at Lawrence, Mass., and fern *Nephrolepis tuberosa* at Cambridge, Mass. (King);

also a common European greenhouse pest in Europe. *Signoret*. It is found living out of doors in Europe and America.

18. ***Lecanium hesperidum*** Linn., 1758.

Described as *Coccus hesperidum*, has been found on *Arabia*, *Abutilon*, *Ficus elastica* and *Rhynchospermum jasimoides* at Colorado (Gillette and Baker), on *Abutilon* sp., *Hedera helix* and *Nerium oleander* at Kansas (S. J. Hunter), on *Phlox drummondii* and *Vinca variegata* at Georgia (W. M. Scott), on *Yucca* at Westbrook, Maine (Stover), on ferns, palms and ivy at Lawrence, Mass. (King). A very destructive species to greenhouse plants at Attyflin Park, England, and a common European species found living out of doors.

19. ***Lecanium tessellatum*** Sign., 1873.

On *Caryota urens* at Augusta and Savannah, Ga. (W. M. Scott), and on the following plants in Mass.: *Chamærops martiana*, *Rhopis flabelliformis*, *Phoenix ousleyana*, *P. reclinata*, *P. paludosa*, *Areca alicæ*, *Rhopalostylis baueri*, *Caryota urens*, *Kentia forsteriana*, *K. wendlandiana*, *Chamærops fortunei*, *Hyophorbe verschaffelti*, *Astrocaryum mexicanum*, *Arenga wightii*, *Monstera deliciosa* and *Gartnera racemosa*, on *Laurus* in Australia, and palm (*Caryota*) in France. A common species in Europe (*Signoret*). Up to 1867 only known from greenhouses.

20. ***Lecanium perforatum*** Newst. 1894.

First described from a greenhouse in England on palms. Is found at Ames, Iowa, on *Howea balmoreana* and *Trachycarpus excelsus* (W. Newell), on palms in a greenhouse at San Francisco, Cal. (Ehrmann) on *Raphis* in greenhouse at Denver, Colorado (Gillette), on leaves of *Eugenia jambosa* in the greenhouse of the Florida Exp. Station (Quaintance), on *Howea balmoreana* and *Trachycarpus excelsus* at Ames, Iowa (W. Newell). The species is but a slight variety of *L. tessellatum* and may only be a form of that species.

21. ***Lecanium flaveolum*** Ckll., 1897.

First found on stems of *Pilea* in the greenhouse of the N. M. Agr. Exp. Station at Mesilla Park. The plant from which the species were found came from the Colorado Station,

and the scale has since been found there by Prof. Gillette on the same species of plant (Cockerell).

22. **Lecanium longulum** Dougl., 1887.

On rubber plants in the greenhouse at Colorado Station (Gillette), very common on roses in greenhouse at Savannah, Ga. (W. M. Scott), on *Monstera deliciosa* in the greenhouse of the Harvard Botanical Gardens at Cambridge, Mass. (King), and a very common species in the tropics and on *Euphorbia* in Cheshire, England, under glass (Newstead).

23. **Lecanium minimus** Newst., 1892.

This was described from scales found in a greenhouse in England (Newstead).

24. **Lecanium filicium** Boisd. 1867.

Said by Dr. Packard to be common in greenhouses in Mass. I have never found it. It is apparently a var. of *L. hemisphaericum*, and has been found in a Manchester cottage in England (Cockerell), and cited by *Signoret* to be found in European greenhouses.

25. **Lecanium platycerii** Park.

Now an unrecognized species, said to have been found on fern (*Nephrolepis* sp.) in a greenhouse in Mass. (Packard).

26. **Lecanium acuminatum** Sign., 1873.

Found on orchids at Paris, France, in greenhouses, and on *Guava* out of doors in the Sandwich Islands.

27. **Lecanium (Saissetia) anthurii** Boisd., 1868.

Was found on ornamental grass in a greenhouse at Lawrence, Mass., and cited as a European species by *Signoret*.

28. **Lecanium melaleucæ** Mark.

Was found on *Monstera deliciosa* in the greenhouse of the Harvard Botanical Garden at Cambridge, Mass. (King).

29. **Lecanium pseudhesperidum** Ckll., 1895.

Found for the first time in a greenhouse at Ottawa, Canada, on *Cattleya* sp. (Fletcher).

30. **Lecanium oleæ** Bern., 1788.

Originally described as *Kermes oleæ*, has been found on *Solanum jasminoides* and *Platyserium* in the College greenhouse

at Colorado (Gillette and Baker); also at Santa Fe, New Mexico (Cockerell), and on *Nerium oleander* at Lawrence, Kansas (S. J. Hunter). It has also been found in greenhouses in England, and cited as a European greenhouse pest by *Signoret*. It lives out of doors in Europe and America.

31. **Lecanium** sp.

A var. of *Olea* was found on *Cycas revoluta* in the Harvard botanical greenhouse at Cambridge, Mass. (King).

I have departed from my usual custom by not giving the bibliographical notes. As a matter of fact it would take up too much space; no less than 169 references would have to be given.

(To be Continued.)

Letters from Thomas Say to John F. Melsheimer, 1816—1825.—IX.

Philad^a August 29th 1821.

MY DEAR SIR!

During our Western tour we had to encounter & surmount many difficulties & privations. You have no doubt had some accurate information relative to our adventures previously to our arrival at Council bluff on the Missouri river, near which position we cantoned for the Winter and passed that inclement season with much comfort in our huts, in friendly intercourse with the neighboring indians. These were the nations of the Ottos, Missouries, Omahas, Pawnees, etc. On the 6th of June we sat out for the Mountains under the most discouraging circumstances. Our paucity of numbers induced our neighbouring indians to endeavour to dissuade us from what they considered a rash enterprize; they assured us that the country was covered with hostile indians, who would not fail to massacre every individual of our small party, consisting of only twenty-two persons. We however reached the mountains, by way of the river Platte, in safety and found them capped with snow in July. Some of the party ascended to the summit of the highest peak mentioned by Pike. We then passed along the base of the Mount^s in a Southern direction until we met the Arkinsaw river & proceeded down that stream to the vicinity

of Pike's "First fork" where our party was divided & Major Long, our commander, with eleven others of our number proceeded in the direction of *Red river*, & the remaining ten of us, continued our journey down the Arkansaw. We met several parties of the little known natives who wander in that remote region, of whom some received us with hospitality, & the conduct of others tended to excite our vigilance. But, contrary to our expectations, we had the good fortune to avoid hostilities with any of them. When within two hundred miles of Fort Smith three of our men deserted from us, carrying with them our best horses, and all my manuscripts, consisting of five books. We soon after arrived at Fort Smith, & were in a few days joined by Major Long & party, who had descended Canadian river. These rivers are not navigable for large boats, & the country within about 500 miles of the Mountains is destitute of timber and miserably poor, thus furnishing us with an excellent frontier in that direction, which is totally unfit for the tillage of civilized man, & which may for ages afford an asylum to the cruelly persecuted indian and its immense herds of Bisons at present so numerous there. I experienced much difficulty in preserving the insects which I collected, many of them are interesting, though they are not numerous. The Secretary of war has ordered our collections to be deposited in the Philadelphia museum* subject to his orders, an arrangement which was anticipated from the commencement of our expedition. I am now engaged in describing the new species of which I find there are many amongst them. But the greater portion of them are inhabitants of Pennsylvania, as well as of the Missouri and Arkinsaw countries. In these descriptions I shall of course preserve the names already adapted by your father in his "Catalogue," & by yourself in your letters to me, as far as I can ascertain them from my cabinet which has been so much enriched by your liberality.

I obtained some very interesting insects from near the Rocky mountains. Of these I may mention several species of the

* Not the museum of the Academy of Natural Sciences, but a place of amusement known as Peale's Museum, whose collections subsequently became scattered under various ownership after the fire which destroyed a portion of them.—W. J. F.

genus *Blaps* ; & one species of *Pimelia* ; a *Manticora* ; a *Lamia* ; of which, from the circumstance of its being apterous, I have made a new genus. Some new species of *Lytta*, &c &c—

Are you acquainted with the *Lytta Afzeliana* of Fabr., it is certainly, if I am not mistaken in the species, totally distinct, from any described genus. I have thought of erecting *Lytta cinerea* into a new genus, in the form of the antennæ it is remarkably distinct from others of the genus *Lytta*.

I should be happy to hear from you and to learn that you still pursue the truly interesting & instructive science of Insects & in the mean time

I remain very Respectfully

Your obedient Servent,

THOMAS SAY—

[There are a number of postscripts attached to this letter, which are here omitted, as they are not thought of sufficient general interest.]

Protection of *Chionobas Semidea*.*

By ANNIE TRUMBULL SLOSSON.

An article with the above title appears in the June number of the ENTOMOLOGICAL NEWS of Philadelphia. The author, Mr. Sidney C. Carpenter, is well known as a skillful and intelligent collector. His article is an earnest appeal for the protection by legislation of our Mt. Washington butterfly. Mr. Carpenter has heard that this interesting little creature is in danger of extermination by too eager and thoughtless collectors. The spirit shown in this paper is admirable and we are warmly in sympathy with it. Rare species in both animal and plant life are too often destroyed ruthlessly, diminished in numbers or quantity and sometimes actually wiped out of existence by reckless, selfish collectors.

But in this case of the While Mountain butterfly we are glad to believe Mr. Carpenter's fears groundless. At present, at least, *semidea* (the "almost goddess") shows no sign of annihilation. I am on the Summit many days of every summer and know whereof I speak. Comparatively few entomological

* From "Among the Clouds," Vol. xxv, No. 18.

collectors visit the mountain. When they come their stay is generally brief, and even in the most favorable weather they carry away but few specimens, and this butterfly is wonderfully abundant. During the ten days of my visit in July of this year I saw literally thousands. As I clambered over the rocks on the eastern slope of the cone, from every crevice and hole fluttered away from my approach the mottled brown wings.

On lichen-covered rocks they rested, hardly to be distinguished from the background, so similar to their own coloring. From tufts of grass and tussocks of sedge, from cushions of bright green moss, from thick bunches of the Greenland sandwort with its delicate white flowers, the sad-colored goddess rose as I came near. The whole air seemed at times alive with brown-gray, floating, fluttering things like sere leaves in late autumn.

No, I am happy to believe and say that the Summit's oldest inhabitant has come to stay, and that long after the tourists of this generation have gone into the chrysalis state in country graveyard or city cemetery, our fragile-winged *semidea* will still float and soar over these old gray granite rocks.

O. W. BARRETT is located at the Agricultural Experiment Station at Rio Piedras, San Juan, Porto Rico.

NOTES FROM THE NEW MEXICO BIOLOGICAL STATION.—I. A New pest of Pine Trees, (*Semasia effectalis*).—On July 8, 1900, Mr. F. Springer directed my attention to some caterpillars burrowing in and injuring the twigs of some imported pine trees in his plantation at Las Vegas, N. M. This injury was like that produced by the Nantucket pine moth and other allied species of the genus *Retinia*, but I was unable to determine the species in the absence of the moths. The caterpillars were about fourteen millimeters long, yellowish-pink, without bands; piliferous warts inconspicuous, concolorous with the body; head shining dark amber. Subsequently the same caterpillars were found infesting the wild pines (*Pinus scopulorum*) at Las Vegas Hot Springs, proving that the insect was a native one. I expected that the moths would emerge in the fall, but as they did not, the jars containing the twigs were put on one side, and not examined until early in June, when it was found that many moths had emerged and died. The pupa is reddish-brown and has an anterior pointed projection as in *Retina frustrana*, but it is not so long. The moth has the anterior wings long and narrow for a *Tortricid*, the basal half lead-colored speckled with white, the apical portion clear reddish-brown.

As I was quite unable to discover any description applicable to this insect, I sent a specimen to Prof. C. H. Fernald, of the Massachusetts Agricultural College. He kindly informs me that it was described by Hulst as *Crambus effectalis*, but it belongs to the genus *Semasia*, and is, of course, in no way related to *Crambus* except in superficial appearance. The original specimen described by Hulst was from California, and the description appeared in Trans. American Entomological Society, Vol. xiii, p. 166. I know of no remedy but that of cutting off and burning the infested twigs.—T. D. A. COCKERELL.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—Ed.

PHILADELPHIA, PA., DECEMBER, 1901.

The department of Entomological Literature has been a constant feature of the NEWS from its first issue in January, 1890, although its form has been altered considerably during these twelve years. Originally, brief abstracts of the contents of a few journals were given; later, in an effort for completeness, space limits compelled the quoting of titles only. A list of new species of North American insects described in the literature of the month was added in January, 1892, and discontinued after September, 1894. The ever-increasing volume of entomological publications necessitated restricting the department in January, 1893, to those dealing with anatomy, physiology, embryology and American species. An index, by orders, to each month's budget was introduced in May, 1894. From January, 1890, to June, 1897, all articles were listed under their respective journals, but in September, 1897, an entire change was made in order to effect a further saving in space. The monthly list now became self-indexing, each paper being recorded under the proper ordinal name. This plan has been followed to the present time, although the alphabetical sequence of authors was not adopted until October, 1897.

Beginning in March, 1890, the present editor prepared notices of journals published in English, the associate editor of those in other languages, but in a few months the entire charge was assumed by the latter, who has continued it to this month, except for the period of his absence in Europe, when Mr. Wm. J. Fox filled his place (September, 1895–October, 1896). Briefly and compactly as the Entomological Literature has been presented, its preparation has, nevertheless, cost consid-

erable time and labor. So much time, indeed, that the associate editor feels that he can no longer afford it, and, therefore, with this year, resigns its compilation to Messrs. Henry L. Viereck and James A. G. Rehn, who have kindly consented to undertake the task.—P. P. C.

THE stump of a pine tree has been standing in my back yard since the tree died, three years ago. Last January it was pulled down to make room for a driveway. All the larger roots and about two feet of the trunk were perforated by immense white larvæ, a number of them dropping from the roots grubbed out, and several cocoons were found, but the larvæ had not yet gone into the pupa stage. The space occupied by the tree was transformed into a smooth, hard driveway. About the middle of May numerous holes nearly an inch in diameter and a couple deep began to appear in the driveway. By the 30th I counted 32, and already suspected that the pine stump was responsible for it, but could not detect the beetle in the act of emerging. Finally we decided to excavate the driveway and determine what the species might be, but by a lucky observation were saved the labor. A small hole hardly $\frac{1}{4}$ -inch in diameter was discovered near a large one vacated the night before, which, when touched, enlarged to $\frac{3}{4}$ -inch in size, exposing the head and antennæ of a ♀ *Prionus californicus* standing on end, with its mandible just below the opening, the ground being excavated, leaving a thin crust with a breathing-hole in the center. This crust readily gave way at the slightest touch. Half a dozen holes of a like character were at once found, each containing a well-hardened *Prionus*. The next evening, the 31st, four more fresh occupied holes were found, with evidence that the beetles had worked to the surface during the day, and lay at the small opening ready to emerge at dusk.

In one instance a small pebble had been encountered large enough to occupy half the diameter of the opening. The beetle worked at it some moments with his open mandibles without success, finally lowering them beneath the stone, and, with a toss of the head, loosened it and the earth for a half inch beyond. The pebble was drawn below, the earth smoothed and rounded, when all action ceased until the final emergence after dark.

In *Insect Life*, vol. 5, page 34, we find that the larvæ of *Prionus californicus* is found only in decaying and rotten stumps and roots of live oak, and that it emerges in July and August. Finding them in pine, therefore, is another record, and the date of emergence much earlier than heretofore recorded. Of the six which emerged the 30th, 3 were ♂ and 3 ♀. Of the four taken the 31st, 1 was ♂ and 3 ♀; the former was recognized in his attempts to mate with one of the females before any of them had been out of the ground five minutes. On June 1st five ♀ were found, and on June 2d two ♀, none on the 3d or 4th, 2 males and 1 ♀ on the 5th. —FRANK S. DAGGETT, Pasadena, Cal., June 5, 1901.

Entomological Literature.

COMPILED BY P. P. CALVERT.

Under the above head it is intended to mention papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology will not be noted. Contributions to the anatomy, physiology and embryology of insects, however, relating to American or exotic species, will be recorded. The numbers in **HEAVY-FACED TYPE** refer to the journals, as numbered in the following list, in which the papers are published; * denotes that the paper in question contains descriptions of new North American forms. Titles of all articles in foreign languages are translated into English; usually such articles are written in the same language as the title of the journal containing them, but when such articles are in other languages than English, French, German or Italian, this fact is indicated in brackets.

4. The Canadian Entomologist, London, Ont., Nov., '01.—**5.** Psyche, Cambridge, Mass., Nov., '01.—**9.** The Entomologist, London, Nov., '01.—**11.** The Annals and Magazine of Natural History, London, Oct., '01.—**12.** Comptes Rendus. L'Academie des Sciences, Paris, '01.—**15.** Biologia Centrali-Americana, pt. clxvi, Sept., London, '01., rec'd. Nov. 4.—**21.** The Entomologist's Record, London, Oct. 15, '01.—**22.** Zoologischer Anzeiger, Leipsic, '01.—**31b.** Bericht der Senckenbergischen Naturforschenden Gesellschaft, '01, Frankfurt a. M.—**35.** Annales, Société Entomologique de Belgique, xlv, 10, Brussels, Oct. 30, '01.—**45.** Deutsche Entomologische Zeitschrift, '01, Erstes Lepidopterologisches Heft, Berlin and Dresden, Oct. 5, '01.—**55.** Le Naturaliste, Paris, '01.—**58.** Revista Chilena de Historia Natural, Valparaiso, '01.—**68.** Science, New York, '01.—**81.** Biologisches Centralblatt, Erlangen, '01.—**140.** Proceedings, Washington [D. C.], Academy of Sciences, iii, Nov. 7, '01.

THE GENERAL SUBJECT.—**Bakhmetieff, M. P.** On the minimum vital temperature in animals whose blood-temperature is variable: 1. Insects, Archives des Sciences Biologiques publiées par l'Institut Impérial de Medecine Expérimentale, viii, 3, St. Petersburg, '01.—**Cockereell, T. D. A.** (General) and **Viereck, H. L.** Hymenoptera). Some Insects of the Hudsonian zone in New Mexico, v, **5.**—**Coupin, H.** The industries of insects, **55**, Oct. 15.—**Delfin, F. T.** The Rio Palena, notes on its natural history [in Spanish], **58**, Aug., Sept.—**Fischer, E.** Experimental researches on the origin and existence of butterfly varieties and aberrations, **31b.**—**Giard, A.** Critical remarks concerning the determination of sex in the Lepidoptera, **12**, Aug. 26.—**Kellogg, V. L.** The homologies of the mouth parts of insects with complete metamorphosis (abstract), **68**, Oct. 25.—**v. Linden.** The wing-markings of insects, figs., **81**, Oct. 15.—**Lucas, R.** (General) and **Seidlitz, G.** (Coleoptera) Report on the scientific results in the field of Entomology during the year 1899, Archiv für Naturgeschichte, lxvi, ii, 2, 1te Hälfte, Berlin, Aug. '01.—**Mayer, P.** [Notices of the literature on Arthropods,

exclusive of Crustacea, during 1900], Zoologischer Jahresbericht für 1900, Berlin, '01.—**McCulloch-Williams, M.**, and **J. B. S.** Magazine entomology, **68**, Nov. 15.—**Sch., S.** The influence of colors on the origin of sex in the silk worm, Insekten Börse, Leipsic, Oct. 17, '01.—**Sharp, W. E.** Notes on the distribution of the British Coleoptera, **21**.

ECONOMIC ENTOMOLOGY.—**Anon.** The Colorado beetle [in England], Gardener's Chronicle, London, Sept. 7, '01.—**Busse, W.** Ants the agents of the production of gum arabic, Revue Scientifique, Paris, Oct. 5, '01 [from Journal d'agriculture tropicale].—**Gillette, C. P.** Report of the Entomologist for 1900, Thirteenth Annual Report, Colorado Agricultural Experiment Station, Denver, Colo., '01.—**Gossard, H. A.** Report of the Entomologist, Florida Agricultural Experiment Station, DeLand, Fla., '01.—**Judd, S. D.** The relation of sparrows to agriculture, figs., Bulletin 15, U. S. Dep't. of Agriculture, Division of Biological Survey, Washington, '01.—**Menegaux, A.** On the life history of the Elm Galeruca, **55**, Oct. 15.—**Pergande, T.** The life history of two species of plant lice inhabiting both the witch-hazel and birch, figs., Technical Series No. 9, U. S. Dep't. of Agric., Division of Entomology, Washington, '01.—**Rosenau, M. J.** Disinfection against mosquitoes with formaldehyde and sulphur dioxid, Bulletin No. 6, Hygienic Laboratory, U. S. Marine Hospital Service, Washington, Sept., '01.—**Sergeant, E.** [and **Laveran**]. On the existence of Anopheles in great numbers in a region from which paludism has disappeared, Comptes Rendus, Société de Biologie, Paris, Oct. 12, '01.

ARACHNIDA.—**Cambridge, F. O. P.** Arachnida Araneidea, vol. ii, pp. 249-280, pls. xxii, xxiii,* **15**.—**Riviera, M. J.** The pairing of *Lathrodectus formidabilis* [in Spanish], **58**, Aug.—**Strand, E.** To knowledge of the Arachnida of Norway, Kongelige Norske Videnskabers Selskabs Skrifter, 1900, Trondheim, '01.

MYRIOPODA.—**Bouin, P.**, and **Collin, R.** Contribution to the study of cellular division among myriopods: Spermatogenetic mitoses in *Geophilus linearis* Koch, Anatomischer Anzeiger, Jena, Oct. 10, '01.—**Pocock, R. I.** Some questions of myriopod nomenclature, **11**.—**Verhoeff, K. W.** On the coxal sacs of the Diplopods and the phylogenetic significance of the Colobognatha, **22**, Oct. 14.

PROTOTRACHEATA.—**Bouvier, E. L.** On the reproduction and development of *Peripatopsis Blainvillei*, **12**, Sept. 30.

APTERYGOTA.—**Absolon, K.** On *Neanura tenebrarum* n. sp. from the caves of the Moravian Karst; on the genus *Tetrodontophora* Reuter and some sense-organs of the Collembola, figs., **22**, Sept. 30.—**Willem, V.** Researches on the Collembola and the Thysanura, figs., 17 plates, Memoires Couronnés et Memoires des Savants Etrangeres, Academie Royale des Sciences, des Lettres et des Beaux Arts de Belgique, lviii, 4to, Brussels, 1899-1900. Rec'd. Oct. 16, '01.

ORTHOPTERA.—**Henshaw, S.** Bibliographical notes, x, Biologia Centrali-Americana Orthoptera, **5**.—**McNeill, J.** Papers from

the Hopkins Stanford Galapagos Expedition, 1898-99: Orthoptera, figs., **140**.—**Scudder, S. H.** The species of *Gryllus* on the Pacific coast, ***5**.

NEUROPTERA.—**Currie, R. P.** Papers from the Hopkins Stanford Galapagos Expedition 1898-99: Odonata, figs., **140**.—**Elrod, M. J.** Limnological investigations at Flathead Lake, Montana, and vicinity, July, 1899, Transactions, American Microscopical Society, xxii, May, 1901; A study of the variations in *Sympetrum rubicundula* and *S. obtrusa* Hagen (abstract), **68**, Oct. 25.—**Needham, J. G.**, and **Hart, C. A.** See *post*.—**Williamson, E. B.** Additions to the Indiana list of dragonflies with a few notes. Proceedings, Indiana Academy of Science, 1900.

HEMIPTERA.—**Bredden, G.** Bugs from the lower Miocene Braunkohl of Salzhausen, figs., **31b**; New neotropical bugs, Societas Entomologica, Zurich-Hottingen, Oct. 15, '01.—**Cockerell, T. D. A.** The Coccid genus *Erium* in South America, **58**, Aug.—**King, G. B.** The Coccidæ of British North America, **4**.—**Kirkaldy, G. W.** Notes on the division Veliaria (= subfam. Velidæ, Leth. and Sev.), **9**.—**Pergrande, T.** See Economic Entomology.

COLEOPTERA.—**Bernhauer, M.** The Staphylinidæ of the palaearctic fauna (cont.), Verhandlungen, zoologisch-botanischen Gesellschaft in Wien, li, 7, Sept. 30, '01.—**Casey, T. L.** A reply to Dr. Wasmann, **4**.—**Deegener, P.** Correction of Escherich's statements on my work 'Development of the mouth-parts and of the alimentary canal of *Hydrophilus*,' **81**, Oct. 1.—**Fall, H. C.** Two new species of Lucanidæ from California,* figs., **4**.—**Hopkins, A. D.** On taxonomic relations between Scolytids and their host plants; On the development and evolution of the Scolytid gallery (two abstracts), **68**, Oct. 25.—**Menegaux, A.** See Economic Entomology.—**Pic, M.** Descriptions of new Coleoptera: new American and African *Notoxus*, **55**, October 1.—**Seidlitz, G.**, **Sharp, W. E.** See the General Subject.—**Tutt, J. W.** Migration and dispersal of insects: Coleoptera, **21**.—**Weise, J.** New Coccinellidæ, **35**.

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The first installment of the long-expected catalogue of the Odonata of Illinois has at length appeared under the title "The Dragonflies (Odonata) of Illinois, with Descriptions of the Immature Stages. Part I. Petaluridæ, Æschnidæ and Gomphidæ." By James G. Needham and Charles A. Hart (Bull. Ill. State Lab. Nat. Hist., vi, art. 1, Sept. 1901, 94 pp., 1 pl.) It comprises a general account of the order, of its American literature, the topographic and food relations of the nymphs and the characters of nymphs and of imagoes employed in classification, as preliminary to descriptions of the three groups named in the title. For each group keys are given, both to imagoes and nymphs. "Of the twenty-eight recognized

Illinois species of the families . . . herein treated, we have here described the nymphs of twenty-four (six of them for the first time), representing all our eleven genera. To these have been added by Prof. Needham descriptions of ten nymphs of extra-limital species." Very little space is given to descriptions of imagos, and this is unnecessary in view of the existence of the descriptive catalogues of Kellicott and of Williamson for Ohio and Indiana respectively. The single plate accompanying the paper figures the nymphs of *Nasiaeschna pentacantha*, *Boyeria vinosa*, *Progomphus obscurus*, *Diastatomma** *carolus* and *Anax junius*. As contents worthy of special note may be mentioned: the adoption of family names (ending in *idæ*) for those groups which de Selys termed subfamilies, excepting the Corduliinæ; the Petaluridæ are held to be probably the oldest Anisoptera and the nymph of *Tachopteryx*, first described by Mr. Williamson "is remarkably synthetic in its characters and supplies a hitherto missing link in the evolution of the labium;" the Libellulidæ "may be grouped in three subfamilies," Syntheminiæ, represented by *Macromia* and *Didymops*, but apparently not defined, Corduliinæ and Libellulinæ. The relations of various kinds of nymphs to the character of the waters and water-bottoms, in which they dwell, are expressed by classifying them into: 1. Those inhabiting submerged vegetation (the Zygoptera, *Æschnidæ*, *Hagenius*, *Mesothemis*, *Celithemis*, *Tramea*); 2. Those which sprawl upon the bottom or climb over fallen rubbish (heavier-bodied Libellulidæ); 3. Those living in the mud or sand of the bottom (most Gomphidæ, Cordulegasteridæ, *Libellula* and its relatives). Many other details of nymphal life are recorded throughout the work.

It will be seen, therefore, that this valuable contribution deals chiefly with the nymphs. It is to be added that it is of great importance, not merely to those interested in the fauna of Illinois and of eastern North America, but also to everyone seeking to understand the relationships of the Odonate groups to each other.—P. P. C.

The perusal of Messrs. Needham and Hart's paper has suggested the preparation of the following abstract from a work published some months ago, but perhaps not yet known to many American readers.

Dr. F. Karsch, in his report on the Odonata of the expedition of Dr. Willy Kükenthal to the Moluccas and Borneo (Abhandlungen, Senckenbergischen Naturforschenden Gesellschaft, xxv, pp. 211-230, Frankfurt a. M., 1900) recognizes the families Calopterygidæ, Cænagrionidæ, *Æschnidæ*, Gomphidæ, Cordulegasteridæ, Corduliidæ and Libellulidæ. The Libellulidæ are divided into four subfamilies: A. Zygomminæ, having the eye-suture long, recalling that of the *Æschnidæ*, and the apices of the triangles on front and hind wings reaching equally far outward (*Zygomma*, *Tholymis*). B. Pantalinæ with the triangles reaching unequally far out-

* Following Kirby's Catalogue, this generic name is used for *Ophiogomphus*.

ward (*Pantala*, *Tramea*, *Hydrobasileus*, *Tauriphila*, *Rhyothemis*, *Miathyria*, *Antidithemis*, *Pseudothemis*). C. Palpopleurinae having the costal margin sinuated before the nodus (*Palpopleura*, *Zenithoptera*, *Diastotops*). D. Libellulinae, the remainder of the family, comprising more than 80 genera (*Neurothemis* to *Urothemis* Brauer). The Libellulinae are grouped as *a*. Libellulæ, having the sectors of the arculus of the front wings not stalked or but slightly stalked, and *b*. Libellæ in which there is a long stalk at the origin of those sectors. The Libellæ in turn are either Libellæ veræ (in which the triangle of the front wings remains triangular, or if converted into a quadrilateral by the angulation of the anterior side, the two limbs are of unequal length) or Nannophyæ (in which the triangle is converted into a quadrilateral by the angulation of the anterior side into two limbs of equal length). This division, as the author himself states, allies the Nannophyæ secretæ of his paper of 1889 (Ent. Nach., xv, pp. 245-263) with the normal triangle-possessing Libellæ, rather than with those genera resembling *Nannophya* in the shape of the "triangle." —P. P. C.

MEGACHILE IN ALASKA.—In an article, Arctic and Sub-Arctic Bees, Nature, London, November, 1898, Prof. Cockerell called attention to the fact that only *Bombus*, among bees, is on record as occurring in the northern latitudes of America. The following list should prove of interest in this connection.

The species were collected by Mrs. J. W. Kirk at Eagle City, Alaska, 65° 30' N. *Bombus consimilis* Cress, ♀; *Bombus flavifrons* Cress ♀; *Bombus howardii* Cress ♀; *Megachile vidua* Sm., Brit. Mus. Cat. Hym., i, 192 ♀; of which *Megachile frigida* Sm., id., i., 193 ♂; and *Megachile frigida* Cress, Trans. Am. Ent. Soc., Supp. Vol. 1887, p. 303 ♀ ♂ are synonyms.—H. L. VIERECK.

Doings of Societies.

A meeting of the American Entomological Society was held October 24, 1901, with Dr. P. P. Calvert, President, in the chair. Eighteen persons were present. The President read the following letter from Mr. E. T. Cresson: "I herewith present to the American Entomological Society my entire collections of Hymenoptera, now on deposit with the said Society, with the understanding that unique specimens of any species or varieties of species, whether types or otherwise, shall not be loaned or taken from the building in which the collections are kept." This valuable collection was gratefully accepted and the Secretary was directed to suitably convey to Mr. Cresson

the thanks of the Society. The following letter was also received from Mr. Cresson and read by the President: "Mr. H. F. Bassett, of Waterbury, Connecticut, who has for thirty years made a special study of North American Galls and Gall-flies, being now in very poor health, desires to present his collection, with all his types, to the American Entomological Society in trust, to be preserved and kept separate and distinct from other collections, and to be known and labelled the Homer F. Bassett Collection, a memorial of his life-work in entomology." This collection was also gratefully accepted under the conditions named.

Dr. Skinner exhibited a pin-cushion which had been filled with bran, but at the present time was filled with the larvæ and imago of *Lasioderma serricorne*.

Mr. Wenzel exhibited a mass of the cocoons of the Tussock moth, all of which were parasitized and hyperparasitized. Quite a number of dipterous pupæ were in the lot.

Mr. W. S. Huntington exhibited a specimen of *Sphyracephla brevicornis*, showing the curious eyes set on stalks.

Mr. Johnson said he had been studying his specimens of *Amalopsis inconstans* and made a communication on the venation of the species.

Mr. Daecke mentioned having seen great swarms of *Myzine sexcincta* at Castle Rock, Penna., during the past summer. He at first thought they were hornets or yellow jackets. He took forty-five males at one sweep of the net.

Mr. Laurent exhibited a collection of photographs from negatives he had made at Miami, Florida, showing the collecting grounds.

Mr. Daecke exhibited a specimen of *Anax junius*, which he had kept alive for three days to get rid of the excreta before he eviscerated it. The colors in this way were wonderfully preserved.

Dr. Calvert stated that specimens of *Argia translata* found in the United States, as far north as New York, agreed with typical specimens from Venezuela.

The following was adopted by the Society: 1. Unique specimens of any species or varieties of species, whether types

or otherwise, shall not be loaned or taken from the building in which the collection is kept. 2. Unique types shall not be loaned nor removed from the building, but duplicate cotypes may be loaned when specially authorized by the Executive Committee of the Society. 3. No specimens belonging to the Society, nor to collections under its care, shall be loaned, except by special permission of the Executive Committee. 4. No specimens belonging to private collections on deposit with the Society shall be loaned nor removed from the building without the consent of the owner and of the Executive Committee.

HENRY SKINNER, *Secretary*.

The regular monthly meeting of the Newark Entomological Society was held on Sunday, October 13th, at Turn Hall. The meeting was called to order by President Buchholtz, nine members being present. Messrs. Kemp and Buchholtz on a collecting trip for caterpillars, September 8th, gathered over 800 specimens of various species.

Mr. Bischoff and Mr. Stortz reported capturing 18 *Pasimachus elongatus* and *Schizogenus ferrugineus* on Staten Island.

Mr. Buchholtz reported capturing a female specimen of *Pamphila massasoit* at Elizabeth, N. J., and also good success in rearing *Catocala* larva of local species.

Mr. Bischoff was the receipt of 3 specimens of *Bostrychus capicanus* from Mr. Stortz.

GEORGE LUCCARENI, *Secretary*.

Hon. P. C. TRUMAN.

Philetus Clark Truman was born in Preston, Chenango Co., N. Y., December 20, 1841, and died October 27, 1901.

His early education was obtained in the district schools and at the Deruyter Institute at Deruyter, N. Y. Since that time he has gained most of his education by private study. In 1856 he left home and went to Wisconsin, where he taught for several years in Rock, Dane and Green Counties, and read law during the intervals of teaching. In July, 1862, he went to Magnolia, Harrison County, Iowa, where he married Miss

Eunice Truman, who died in November, 1873, leaving one daughter, Alice M., now Mrs. J. C. Jenkins. While a resident of Iowa he taught several terms of school and served as county superintendent and county surveyor for several years. In 1873 he was admitted to the bar at Harlan, Iowa, where he practiced law until 1881, when he came to Brookings County. Here he at once took a pre-emption (in Lake Sinai Township, and after proving up his claim he located in the village of Volga and became a partner in the law office of A. S. Mitchell. Since 1891 he has kept an independent office, doing a general law practice until about a year ago. January 12, 1892, he was married to Miss Mary E. Dickerson. In 1893-4 he served as county judge of Brookings County, and in the fall of 1894 was elected a member of the house of representatives.

Mr. Truman was a man of excellent business habits, honorable and true. In his chosen profession—the law—he was eminently successful and conscientious, winning for himself an enviable reputation. Always courteous and obliging, having his own views of all public questions and arriving at his conclusions with admirable judgment, he was content to accord to others the same principle—ever ready to give advice, but never anxious to force himself or his views upon others. As a citizen of the community he had the general welfare at heart and always strived to advance its moral and financial interests. In the different positions of trust to which the people of the village and county have elected him in years past he always acquitted himself with credit and honor. He will be greatly missed, not only in his home, but in this community, where he has been closely identified with our people and interests for the past twenty years.—*Volga [South Dakota] Tribune.*

Judge Truman will also be greatly missed by a large circle of entomological correspondents. He was a good collector and an enthusiastic student of insects. Prof. J. M. Aldrich says of him: "He was by all odds the best entomologist in South Dakota, and practically the only one at the time I lived in the State." He had a fine collection of Lepidoptera to which he was very devoted.

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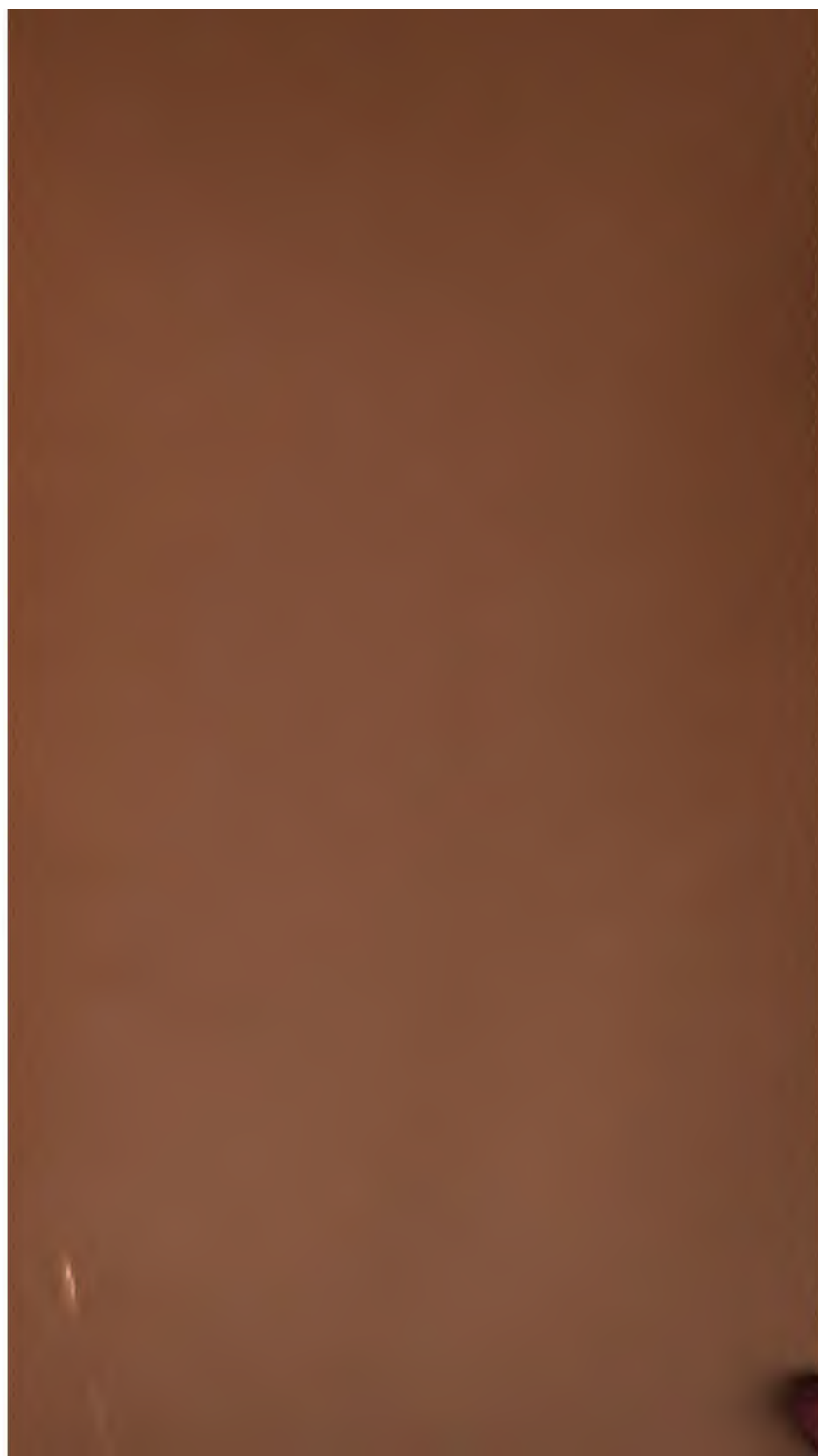
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